1987 Annual Report

National Energy Board

88-03922/

National Energy Board Profile

The National Energy Board is a federal regulatory tribunal that was created on 2 November 1959 by an Act of Parliament. During the past 28 years, it has played an important role in the development of Canada's energy sector.

The Board's regulatory powers under the *National Energy Board Act* include the licensing of oil, natural gas, and electricity exports, the certification of interprovincial and international pipelines and designated interprovincial and international power lines, and the setting of tolls and tariffs for oil and gas pipelines under federal jurisdiction.

The *Act* also requires that the Board keep under review the Canadian supply of all major energy commodities, with emphasis on electricity, oil, natural gas, and the by-products derived from oil and natural gas, as well as the demand for Canadian energy in Canada and in export markets.

The Board also has specific responsibilities under the *Northern Pipeline Act* and the *Energy Administration Act*. In addition, Board inspectors have been appointed safety officers by the Minister of Labour to administer Part IV of the *Canada Labour Code*.

Head Office:

National Energy Board
473 Albert Street
Ottawa, Ontario
K1A 0E5
(613) 998-7204

Calgary Office:

National Energy Board
4500 - 16th Avenue N.W.
Calgary, Alberta
T3B 0M6
(403) 292-6700

This report is published separately in both official languages.

Copies of this report and others listed at the back of this report are available on request from:

Regulatory Support Office
National Energy Board
473 Albert Street
Ottawa, Canada
K1A 0E5
(613) 998-7204

© Minister of Supply and Services Canada 1987
Cat. No. NE1-1987E
ISBN 0-662-16026-6

Printed in Canada

Ce rapport est publié séparément dans les deux langues officielles.

On peut se procurer ce rapport et les rapports mentionnés à l'endos, sur demande, au:

Bureau du soutien de la réglementation
Office national de l'énergie
473, rue Albert
Ottawa (Canada)
K1A 0E5
(613) 998-7204

Imprimé au Canada

National Energy Board

31 March 1988

The Honourable Marcel Masse, P.C., M.P.
Minister of Energy, Mines and Resources
Ottawa, Ontario

Dear Mr. Masse:

I am pleased to submit the Annual Report of the National Energy Board for the year ending 31 December 1987 in accordance with the provisions of Section 91 of the National Energy Board Act, Revised Statutes of Canada, 1970, chapter N-6.

Yours sincerely,

R. Priddle,
Chairman

Companies Under National Energy Board Jurisdiction

The following is a list of pipeline companies[1] which own and/or operate interprovincial or international pipelines under the Board's jurisdiction, companies that have been granted licences to export natural gas, and electric utilities that have been granted electricity export licences by the Board. References to the following companies in this report use the abbreviations indicated in brackets.

PIPELINES

Group 1 Companies

Gas

Alberta Natural Gas Company Ltd. (Alberta Natural Gas)[2]
Foothills Pipe Lines (Yukon) Ltd. (Foothills)
Trans Québec & Maritimes Pipeline Inc. (TQM)
TransCanada PipeLines Limited (TransCanada)
Westcoast Transmission Company Limited (Westcoast)

Oil and Products

Cochin Pipe Lines Ltd. (Cochin)[2]
Interprovincial Pipe Line Limited (Interprovincial)
Interprovincial Pipe Line (NW) Ltd. (IPL(NW))[2]
Trans Mountain Pipe Line Company Ltd. (Trans Mountain)
Trans-Northern Pipelines Inc. (Trans-Northern)

Group 2 Companies

Gas

Amoco Canada Petroleum Company Ltd. (Amoco) (pipeline abandoned)
A.P.R. Pipeline Company Ltd. (A.P.R. Pipeline)
Canadian Hunter Exploration Ltd. (Canadian Hunter)
Canadian-Montana Pipe Line Company (Canadian-Montana)
Champion Pipe Line Corporation Limited (Champion)
Consolidated Pipe Lines Company (Consolidated)
Consumers' Gas (Canada) Limited (Consumers' Gas)
Dome Petroleum Limited (Dome)
ICG Transmission Holdings Ltd. (ICG Transmission)
Many Islands Pipe Lines (Canada) Limited (Many Islands)
Mid-Continent Pipelines Limited (Mid-Continent)
Minell Pipeline Ltd. (Minell)
Murphy Oil Company Limited (Murphy Oil)
Niagara Gas Transmission Limited (Niagara Gas)
Peace River Transmission Company Limited (Peace River)
Saskatchewan Power Corporation (Saskatchewan Power)
Shell Canada Products Limited (Shell Canada)
Union Gas Limited (Union Gas)

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1 The pipeline companies have been divided into two groups. Group 1 consists of the ten major pipeline companies which are audited by the Board on a regular basis and whose operating results are continuously monitored by the Board. The 33 companies under the Board's jurisdiction that are not included in Group 1 have been designated as Group 2 companies.

2 Although Alberta Natural Gas, Cochin and IPL(NW) are considered to be Group 1 Companies, their tolls are regulated on a complaint basis.

Group 2 Companies (cont'd)

Oil and Products

Aurora Pipe Line Company (Aurora)
Dome Kerrobert Pipeline Ltd. (Dome Kerrobert)
Dome NGL Pipeline Ltd. (Dome NGL)
Dome NGL Pipeline Ltd. and Amoco
Canada Petroleum Company Ltd. (Dome NGL and Amoco)
Esso Resources Canada Limited (Esso Resources)
Manito Pipelines Ltd. (Manito)
Montreal Pipe Line Limited (Montreal)
Mont Resources Limited (Mont Resources)
Murphy Oil Company Limited (Murphy Oil)
Northwest Transmission Company Limited (Northwest Transmission)
Petroleum Transmission Company (Petroleum Transmission)
Polysar Hydrocarbons Ltd. (Polysar)
Sun Pipe Line Company Limited (Sun)
Wascana Pipe Line Ltd. (Wascana)
Westspur Pipe Line Company (1985) Inc. (Westspur)
Yukon Pipelines Limited (Yukon)

GAS EXPORT LICENCE HOLDERS

Alberta and Southern Gas Co. Ltd. (Alberta and Southern)
Alberta Northeast Gas Ltd. and AEC Oil and Gas Company (ANE and AEC)
Alberta Northeast Gas Ltd. and ATCOR Ltd. (ANE and ATCOR)
Alberta Northeast Gas Ltd. and ProGas Limited (ANE and ProGas)
Alberta Northeast Gas Ltd. and TransCanada PipeLines Limited (ANE and TransCanada)
Canadian-Montana Pipe Line Company (Canadian-Montana)
Columbia Gas Development of Canada Ltd. (Columbia Gas)
Consolidated Natural Gas Limited (Consolidated)
ICG Transmission Holdings Ltd. (ICG Transmission)
KannGaz Producers Ltd. (KannGaz)
Niagara Gas Transmission Limited (Niagara Gas)
Pan-Alberta Gas Ltd. (Pan-Alberta)
ProGas Limited (ProGas)
Shell Canada Limited (Shell)
Sulpetro Limited (Sulpetro)
Tenneco LNG Inc. (Tenneco LNG)
TransCanada PipeLines Limited (TransCanada)
Transcontinental Gas Pipe Line Corporation (Transcontinental)
Union Gas Limited (Union Gas)
Westcoast Transmission Company Limited (Westcoast)

ELECTRIC POWER LICENCE HOLDERS[1]

British Columbia Hydro and Power Authority (B.C. Hydro)
Canadian Niagara Power Company Limited (Canadian Niagara)
Cominco Ltd. (Cominco)
Fraser Inc. (Fraser Inc.)
Maine and New Brunswick Electrical Power Company, Limited (Maine and New Brunswick)
The Manitoba Hydro-Electric Board (Manitoba Hydro)
New Brunswick Power (N.B. Power)
Ontario Hydro (Ontario Hydro)
Hydro-Québec (Hydro-Québec)
Saskatchewan Power Corporation (Saskatchewan Power)
St. Lawrence Power Company (St. Lawrence Power)

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1 All the licensees, except St. Lawrence Power Company, export over their own facilities, for which Board certificates have been issued. St. Lawrence exports its power over the facilities of Cedars Rapids Transmission Co.

Metric Conversion Table

The National Energy Board uses the International System of Units (SI). The energy units most commonly referred to in this report are the gigajoule (GJ) and the petajoule (PJ). A 30-litre gasoline fill-up contains about one gigajoule of energy. A petajoule is one million gigajoules. On average, a city the size of Toronto or Montreal uses a petajoule of energy for all uses (heat, light, transportation, etc.) about every 17 hours.

The following conversion table is provided for the convenience of readers who may be more familiar with the Imperial System.

Approximate Conversion Factor

1 metre (m)	= 3.28 feet
1 kilometre (km)	= 0.62 mile
1 millimetre (mm)	= 0.039 inch
1 cubic metre (m^3) of oil	= 6.3 barrels
1 cubic metre (m^3) of natural gas	= 35.3 cubic feet
1 litre (L)	= 0.22 gallons
1 kilogram (kg)	= 2.20 pounds
1 gigajoule (GJ)	= 0.95 MMBtu, or 0.95 thousand cubic feet (Mcf) of natural gas at 1000 Btu/cf
1 petajoule (PJ)	= 0.95 billion cubic feet of natural gas, or 165 000 barrels of oil, or 0.28 terawatt hours of electricity

Abbreviations

gigajoule (GJ)	= 10^9J
terajoule (TJ)	= 10^{12}J
petajoule (PJ)	= 10^{15}J
exajoule (EJ)	= 10^{18}J
kilowatt (KW)	= 10^3 watts
megawatt (MW)	= 10^3 KW
megawatt hour (MW.h)	= 10^3 KW.h
gigawatt hour (GW.h)	= 10^6 KW.h
terawatt hour (TW.h)	= 10^9 KW.h

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Chairman's Letter

The Board had a busy 1987. Its activities ranged over the gamut of its statutory responsibilities, which include the provision of advice to the Minister, the certification of new pipelines, the regulation of tolls and tariffs, and the licensing of new exports. In this regard, the Board provided advice to the Minister of Energy, Mines and Resources, at his request, on the regulation of electricity exports. During the year, the Board made three major toll decisions on oil and gas pipelines; it dealt with applications for major new exports of natural gas and electricity; it decided on new natural gas surplus determination procedures; and, it continued to inquire into aspects of pipeline safety. At year-end, it was dealing with an application for a major expansion of the gas pipeline system serving eastern Canada and the northeastern United States.

The Board's hearing workload, about 172 days of hearings, was approximately the same as in 1985 and 1986. However, we are conscious of the need to achieve whatever economies and efficiencies are possible in the hearing process, while at the same time assuring a full and fair opportunity for all parties to be properly heard.

To this end, the Board seeks both to improve public hearings and to reduce their number and length where appropriate.

As to improving hearings, the Board sent a list of proposals to interested parties early in 1987 and received in return a large number of additional suggestions. At mid-year, the Board published a set of decisions on its proposals relating, first, to improvements which the Board itself could put in place and, second, to those requiring the co-operation of parties. At year-end, the Board made its initial views known in a third area, namely the suggestions of parties which would require, in some cases, changes in established regulatory policy. The Board expects to receive further comments in this area in early 1988 and will then issue its final views.

As to reducing the number of hearings, the Board's activity has been in two principal areas. First, it continues to reduce the number of companies subject to rigorous pipeline toll regulation: for example, in 1987 both Alberta Natural Gas and IPL (NW) were removed from this category. Second, it has tried where possible to set the tolls of the remaining pipeline companies for periods longer than one year: for example, in 1987, because the applications were filed late in the year, the Board set the tolls for TQM and Westcoast for the two years 1987 and 1988. There were, however, circumstances in regard to both these applications which might be exceptional and, of course, it may not be possible to deal with all applications for periods of two years.

The Board is very much aware of and responsive to the government's policies in the area of regulatory reform as they relate both to tribunals' processes and regulation of Canada's energy industries.

As to its regulatory process, the Board has initiated changes which will place the responsibility for approving crossings of pipelines and electricity transmission lines with the owners of those facilities. Board involvement in specific cases will then only arise where there are disputes to be resolved. When the new regulations are in place, later in 1988, they will eliminate the need for the Board to be involved in the processing and issuance of the majority of 800 pipeline crossing orders per year.

In the area of energy regulatory reform, the Board's decisions have had positive effects in 1987 on the freer working of Canadian energy markets.

Thus, in the matter of interprovincial gas transmission, there were 78 shippers of gas on TransCanada's system in the 1986-87 gas contract year. In 1984-85, there had been only four. Between November 1985 and April 1987 the Board issued 89 orders requiring TransCanada to provide carriage for other companies' gas. The Board was encouraged by TransCanada's April 1987 decision to enter voluntarily into carriage arrangements with new shippers: the Board's powers of compulsion have, therefore, for the most part been superseded by harmonious private sector arrangements.

In regard to oil markets, following completion in 1987 of an expansion of Interprovincial's pipeline system which the Board had found to be in the public interest, there was for the first time in three years no involuntary shut-in of western Canadian crude oil production. And from the standpoint of consumers of Canadian crude oil, there was as a further consequence the virtual elimination of differentials unfavourable to Canadian consumers in the price of oil flowing to domestic and export markets.

In both cases provincial authorities had taken congruent actions to enable these favourable effects for both producers and consumers of Canadian oil and gas.

As a consequence of less energy regulation, efficiencies in the application of remaining regulation, and economies in its own operations, the Board found a need to substantially reduce its staff. The total number, Board Members included, peaked at 460 in 1984. By early 1987, numbers had been progressively reduced to 420. A formal Workforce Adjustment Program is now being implemented which, by 1 April 1988, will have effected a reduction of a further 70. The Board will then be about the size that it was in the mid-1970s, that is, before the Northern Pipeline hearings and the National Energy Program. The public has been served efficiently and effectively during a period when staff numbers have been cut by about 25 percent, and I want to pay tribute to and express my appreciation of the staff in this achievement.

Further change to the Board's responsibilities in the area of energy exports and imports will result from implementation of the Free Trade Agreement between Canada and the United States. While the Board has been kept fully informed about the agreement and its implications, it is too early to say what impact, if any, implementation may have on the size of the staff necessary to properly discharge its responsibilities.

I am confident of the Board's ability to provide government with specialist energy advice and to dispense relevant regulation in those areas of energy transportation and energy trade where, because of the presence of natural monopolies and the existence of market power, economic regulation is still required. The Board is similarly experienced in matters relating to the approval of pipeline construction, the safeguarding of the environment, the optimization of socio-economic impacts and of human safety in pipelines. The nine Members of our Board, with varying professional qualifications and experience backgrounds, have in aggregate many decades of energy experience. They are supported by a well-qualified, experienced and dedicated staff. Our overriding interest is to best serve the public interest of Canada.

In this connection, I wish to recognize the sterling contribution made during 14 years' service as a Member, and seven years as Vice Chairman, of Ralph Brooks, originally of Saint John, New Brunswick. Mr. Brooks retired in November 1987. We were then pleased to welcome to the Board Jean-Guy Fredette of Montreal, Quebec, as a Member and Vice Chairman. I also want to pay tribute to Robert St.G. Stephens, who retired at the end of 1987 after six years of outstanding service as the Board's first Executive Director. We also welcome his successor, Robin D. Glass.

R. Priddle

Energy Developments

Overview

International Oil Prices

While 1987 did not see the turmoil of 1986 on world oil markets, the year was characterized by uncertainty about the ability of the Organization of Petroleum Exporting Countries (OPEC) to maintain its target reference price. OPEC had established, effective 1 February 1987, a price of $U.S. 18 per barrel based on a basket of seven international crude oils. It also set quotas for its 1987 oil production which averaged 16.2 million barrels per day. OPEC production, however, averaged close to 18 million barrels per day, near the level of 1986 and about 40 percent of world production (excluding the centrally planned economies).

OPEC's production in excess of its targets put downward pressure on international prices. West Texas Intermediate crude oil, which had risen from under $U.S. 15 per barrel[1] during the fourth quarter of 1986 to almost $U.S. 20 by mid-1987, fell to less than $U.S. 18.50 in November. Further price declines were prevented by the escalation of hostilities in the Persian Gulf.

Against this background of over-production and the related possibility of further price declines, OPEC met in December 1987 to establish production quotas and the reference price for 1988. It was decided to maintain the quotas totalling 16.2 million barrels per day for the first six months of 1988 and to continue to target on a reference price of $U.S. 18 per barrel.

Energy Production, Consumption and Trade

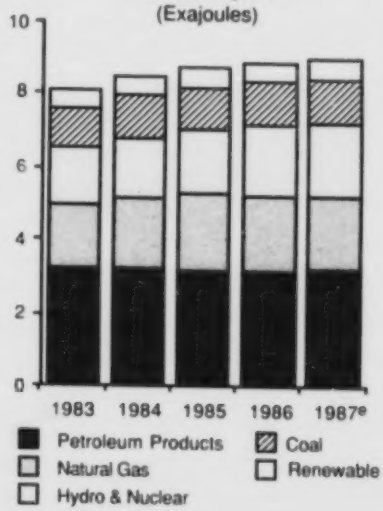
Strong economic growth in Canada and improved energy export markets led to increased energy production in 1987.

Primary energy demand in Canada in 1987 grew by 1.7 percent. Growth was mostly attributable to increased use of oil and hydroelectric power.

Petroleum exports rose during 1987, but imports also grew. As a result, net export volumes decreased slightly. However, net export revenues increased from under $2 billion in 1986, to about $3 billion in 1987, resulting from higher prices and larger net exports of higher-valued materials.

Electricity exports rose substantially during 1987 to reach a record level. The associated revenues also increased over 1986, but to a

Figure 1
Canadian Energy Consumption
(Exajoules)



e - Estimate

Reference: Energy Overview Appendix 1

1. Prices quoted are at Cushing, Oklahoma.

lesser extent, because export prices per unit were still being affected by low world oil prices.

Natural gas exports benefited from improved access to American markets. Export volumes rose from under 800 petajoules in 1986 to just over one exajoule (1 000 petajoules) in 1987. However, continued gas-to-gas competition in the United States led to lower export prices, resulting in revenues being only slightly higher than in 1986. Increased exports offset a weaker domestic market and natural gas production was up by eight percent.

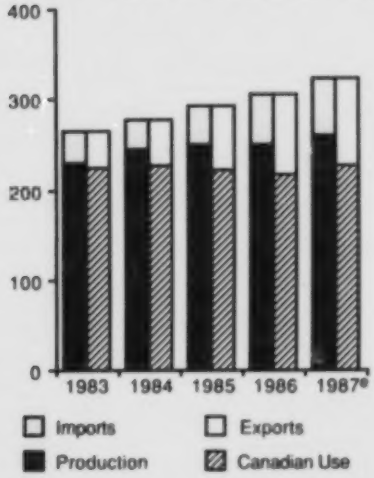
Table 1
Canadian Trade in Petroleum, Gas and Electricity
(Petajoules and Billions of Dollars)

	1985		1986		1987[e]	
	PJ	$ Billions	PJ	$ Billions	PJ	$ Billions
Exports						
Petroleum[a]	1 560	9.1	1 745	5.8	1 858	7.1
Natural Gas	990	4.0	790	2.5	1057	2.6
Electricity[b]	149	1.4	127	1.1	163	1.2
Total	**2 699**	**14.5**	**2 662**	**9.4**	**3 078**	**10.9**
Imports[c]						
Petroleum[a]	775	4.8	944	4.0	1 092	4.4
Net Export Total	**1 924**	**9.7**	**1 718**	**5.4**	**1 986**	**5.5**

The numbers in this table have been rounded.
e - Estimate
a - Includes petroleum products and natural gas liquids. Excludes exchanges between Canada and the United States.
b - Electricity is converted at 3.6 petajoules per terawatt hour on the basis of the energy content of the electricity output. Excludes exchanges between Canada and the United States.
c - Import quantities of natural gas and electricity were negligible.

Figure 2

Canadian Crude Oil and Equivalent Supply and Disposition
(Thousands of Cubic Metres per Day)



e - Estimate Reference: Energy Overview Appendix 2

Crude Oil and Petroleum Products

Domestic Supply and Demand

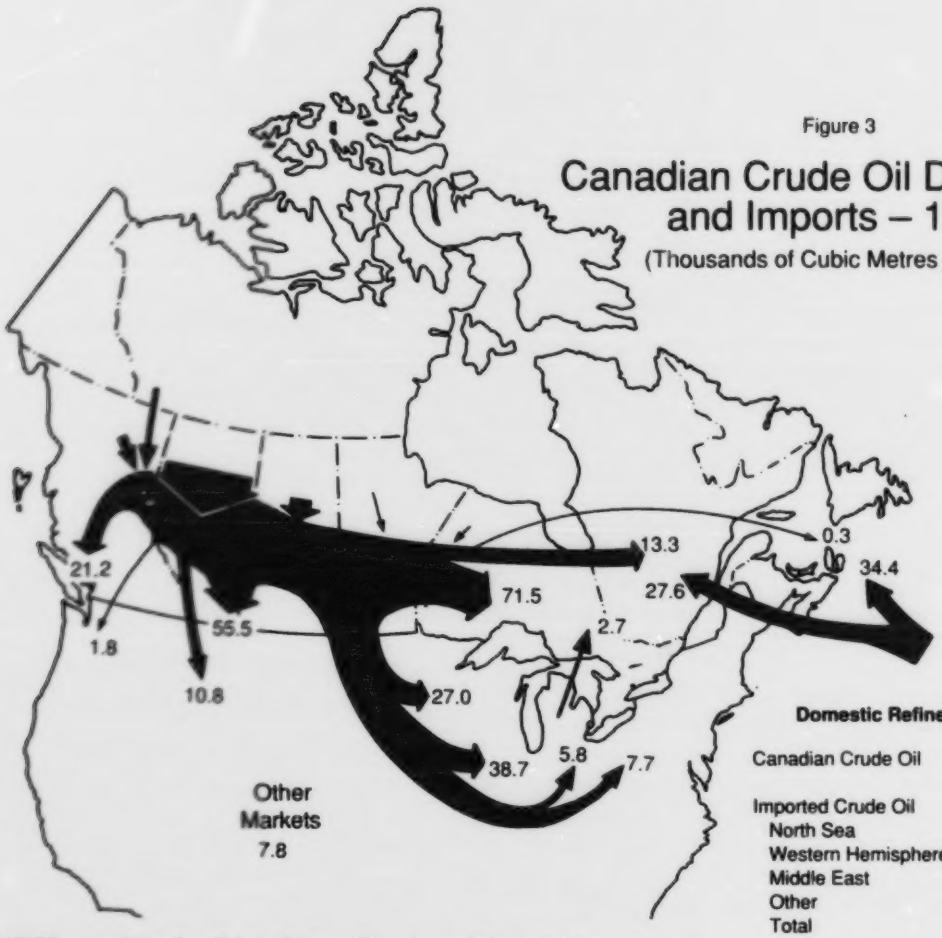
The volume of crude oil and equivalent[1] processed by Canadian refineries increased by five percent during 1987. This reflected growth in domestic demand for refined petroleum products, mainly petrochemicals, naphthas, jet fuels, and asphalt. Demand for gasoline and middle distillates was little changed. Use of heavy fuel oil use rose substantially, largely as a result of increased consumption by electrical utilities in the Atlantic provinces.

1 Includes light and heavy crude oil, pentanes plus and synthetic crude oil, but excludes other feedstocks such as gas plant butanes and partially processed oil.

Figure 3

Canadian Crude Oil Disposition and Imports – 1987

(Thousands of Cubic Metres per Day)



Domestic Refinery Receipts

Canadian Crude Oil		161.8
Imported Crude Oil		
North Sea	33.9	
Western Hemisphere	11.6	
Middle East	9.9	
Other	9.3	
Total		64.7
Total Receipts		226.5
Total Exports		99.6

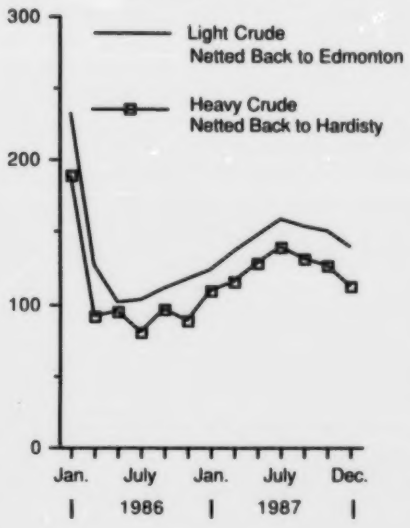
During 1987, receipts by Canadian refineries of domestic crude oil and equivalent were 162 000 cubic metres per day, an increase of one percent over 1986. Receipts of foreign feedstocks in 1987 were 65 000 cubic metres per day, 14 percent above the previous year's level. The increase in imports was, to a large extent, caused by the reopening of the Come-By-Chance refinery in September of 1987.

Canadian production of conventional light and medium crude oil increased by two percent to 152 200 cubic metres per day in 1987, largely as a result of the removal of pipeline capacity contraints.

During the first quarter of 1987, the volume of light crude oil shut in, mainly because of pipeline capacity constraints, was 20 000 cubic metres per day. The shut-in was eliminated during the last half of the year, as a result of two events. First, there were extensive revisions to the prorationing system used by the Alberta Energy Resources Conservation Board which, in effect, provided producers and refiners complete freedom to sell and purchase Alberta oil. Secondly, there was an increase in the capacity of the Interprovincial pipeline system.

Figure 4

Crude Oil
Average F.O.B. Export Price
($Cdn. per Cubic



Synthetic crude oil plants operated at high output levels during the first three quarters of the year. However, because of a fire at the Suncor plant in October and the downtime for maintenance at Syncrude, output for all of 1987 decreased two percent from the previous year, averaging 28 600 cubic metres per day.

Heavy crude oil production, including blended bitumen, set records, increasing to 73 100 cubic metres per day from 64 200 cubic metres per day in 1986.

Total crude oil and equivalent production of 259 800 cubic metres per day was 4.3 percent above the 1986 average level of 249 000 cubic metres per day.

Crude Oil Exports

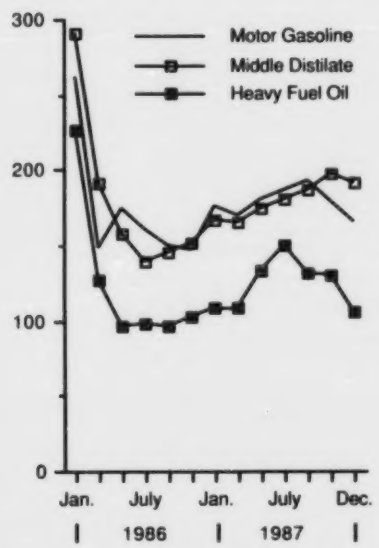
During 1987, crude oil exports, including synthetic crude oil and pentanes plus, averaged 99 600 cubic metres per day. This was made up of 55 400 cubic metres per day of heavy crude oil and 44 200 cubic metres per day of light crude oil. In both the light and heavy categories, there was an increase in exports of about seven percent. The estimated value of crude oil exports in 1987 is $4.9 billion compared to $3.8 billion in 1986. The increase of 30 percent in the value of exports resulted from increases in both export volumes and prices, reflecting the rise in the average world price of oil in 1987. The export prices of Canadian light and heavy crude oils in 1986 and 1987 are shown in Figure 4.

As in previous years, the primary market for Canadian crude oil exports was the mid-western United States. However, although relatively small, crude oil exports to overseas destinations increased in 1987 to 1 000 cubic metres per day.

The largest export buyers of Canadian light crude oil in 1987 were Clark Oil, Conoco, Sun Refining and United Refining; of Canadian heavy crude oil, the largest foreign customers were Koch Refining, Union Oil, Mobil Oil and Amoco. (Please refer to *Oil Appendix* 5 for more details.)

Figure 5

Main Petroleum Products
Average F.O.B. Export Price
($Cdn. per Cubic Metre)



Main Petroleum Product Exports

During 1987 main petroleum product exports averaged 22 000 cubic metres per day, an increase of 15 percent over the previous year. The value of exports, excluding products produced under processing agreements, rose at a higher rate, by 30 percent to $0.9 billion, reflecting the recovery in world oil prices from the low levels of 1986. Figure 5 shows the increases which occurred in the export prices of main petroleum products since the middle of 1986.

The United States continued to be our largest buyer of petroleum products, accounting for some 96 percent of total exports. However, the largest increase in exports in 1987 occurred in exports from British Columbia, which were destined mainly to the Far East. Table 2 provides petroleum product export volumes by region. Exporters across Canada were able to make sales of

petroleum products into the export market, continuing the pattern of the previous year. Exports from the Newfoundland Energy Limited Come-By-Chance refinery were small, because the refinery reopened late in the year.

Table 2

Main Petroleum Product Exports
(Thousands of Cubic Metres)

	Motor Gasoline	Middle Distillate	Aviation Turbine Fuel	Heavy Fuel Oil	Partially Processed Oil	Total[a]
Atlantic	902	1 357	201	274	175	2 909
Quebec	44	475	–	343	34	896
Ontario	213	1 050	147	674	15	2 099
Prairies	214	363	150	79	–	806
British Columbia	598	324	441	17	11	1 391
Total	**1 971**	**3 569**	**939**	**1 387**	**235**	**8 101**
Average Export Price ($/m^3)	180	180	172	127	153	

a - excludes propane, butanes, lubricants, greases, and asphalt.

Oil Pipeline Capacity

The most important factor to affect oil pipeline capacity in 1987 was the completion of an expansion program by Interprovincial. Interprovincial, which transports oil east from Alberta and Saskatchewan, completed its Phase II and Phase III expansions in February and October 1987. These projects had been approved by the Board following public hearings in 1985 and 1986, respectively. Prior to the expansion, more oil was tendered for shipment on the pipeline than could be accommodated and the company was forced to apportion available space among shippers. Since the expansion and the reactivation of an existing line, there has been enough capacity to move essentially all available volumes to market.

During 1987, the Wascana pipeline was reactivated. This pipeline is used to ship Saskatchewan heavy crude oil south from Regina to the United States.

Natural Gas

Supply and Domestic Demand

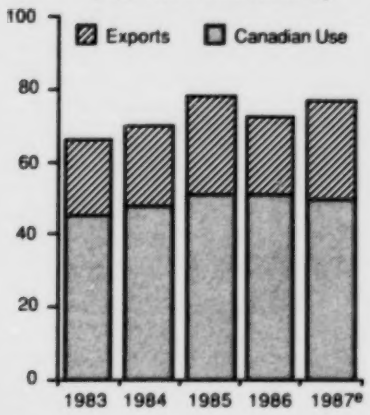
Natural gas markets continued to adjust to a less regulated environment in 1987. Price negotiations between natural gas producers and consumers occurred throughout the year. Direct natural

Figure 6

Natural Gas

Supply and Disposition

(Billions of Cubic Metres)



e - Estimate Reference: Energy Overview Appendix 3

gas sales increased substantially, resulting in gas-to-gas competition in some markets.

In 1987, net sales of natural gas in Canada decreased by five percent from 1986 to 45.5 billion cubic metres.

Residential and commercial use of natural gas for heating declined because of relatively warm weather. Industrial use declined slightly as a result of competition from other fuels and feedstocks.

Production of natural gas increased in 1987 to 77.9 billion cubic metres from 72.1 billion cubic metres in 1986 as a result of a large increase in export sales.

Exports

The Board approved 109 short-term natural gas export orders during 1987.

The volume of natural gas exports increased during 1987 by seven billion cubic metres, or 33 percent, from 21 billion cubic metres in 1986 to 28 billion cubic metres. However, natural gas prices fell, reflecting gas-to-gas competition in a shrinking American natural gas market. Canadian natural gas export prices averaged $2.43 per gigajoule in 1987 compared to $3.20 per gigajoule during 1986, a decline of 24 percent.

The net result was an increase in total gas export revenues to $2.6 billion compared to $2.5 billion in 1986.

Exports to California, which accounted for 50 percent of Canada's 1987 gas export sales, were responsible for 80 percent of the increase in volume. The remainder of the increase is attributable to higher sales into the American spot market. As a result, the Canadian share of the American gas market increased to approximately 5.8 percent, up from 4.6 percent in the previous year.

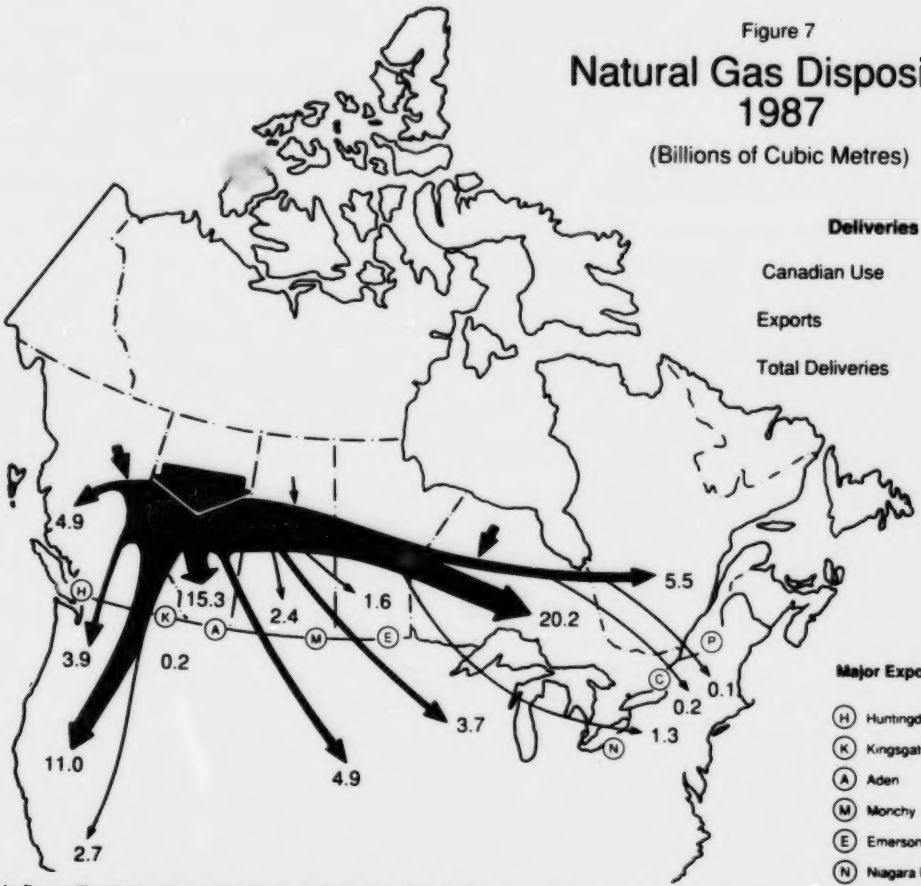
Access to American transportation systems remains a problem despite continuing efforts by the United States Federal Energy Regulatory Commission (FERC) to induce interstate pipeline companies to become "open access" transporters of gas. During 1987 only one American pipeline company directly accessible to Canadian gas accepted open access status. During the year, lack of access to American pipelines limited exports under short-term orders. However, under contractual provisions in a number of long-term agreements for selling gas under licence, export sales into the spot market by licence-holders remained strong and accounted for about one-quarter of total export sales.

At year-end 1987, the outlook for 1988 export sales was optimistic. If open access to interstate pipelines becomes a reality early in the year, export volumes should increase again. Gas export prices are expected to stabilize.

Figure 7

Natural Gas Disposition 1987

(Billions of Cubic Metres)



Deliveries

Canadian Use	49.9
Exports	28.0
Total Deliveries	77.9

Major Export Points

H	Huntingdon	3.9
K	Kingsgate	13.7
A	Aden	0.2
M	Monchy	4.9
E	Emerson	3.7
N	Niagara Falls	1.3
C	Cornwall	0.2
P	Phillipsburg	0.1

This figure illustrates the major flows of Canadian Gas from sources of supply to markets.
Each arrow is proportionate in width to the volume of gas which flowed in 1987.
The numbers in this table have been rounded.

Figure 18 presents a map which indicates the location of natural gas pipelines regulated by the Board.

Natural Gas Liquids

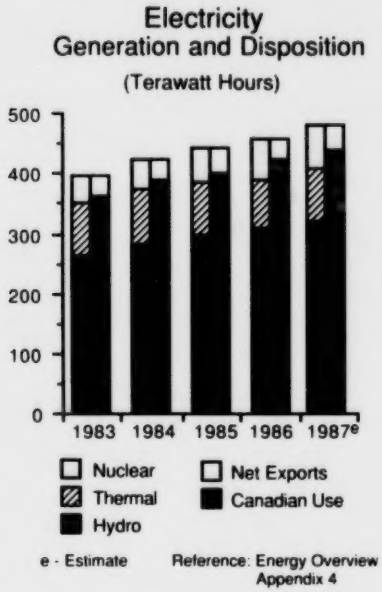
Total net Canadian production of propane and butanes in 1987 was 7.9 and 5.1 million cubic metres respectively, about 8.5 and 19 percent above 1986 levels. Ethane production was 9.4 million cubic metres, an increase of 16 percent above 1986 levels. Canadian domestic requirements for propane and butanes grew substantially in 1987. Export quantities of propane and butanes amounted to 2.6 and 2.8 million cubic metres respectively. This was an increase of 16.1 percent over 1986 levels. There were no ethane exports in 1987.

Electricity

Generating Capacity

In 1987, Canada's total net generating capacity was approximately 95 000 megawatts, an increase of about 3 500 megawatts, or four percent, over 1986. The increased generating capacity was primarily a result of new nuclear units coming into service in Ontario.

Figure 8



e - Estimate

Reference: Energy Overview Appendix 4

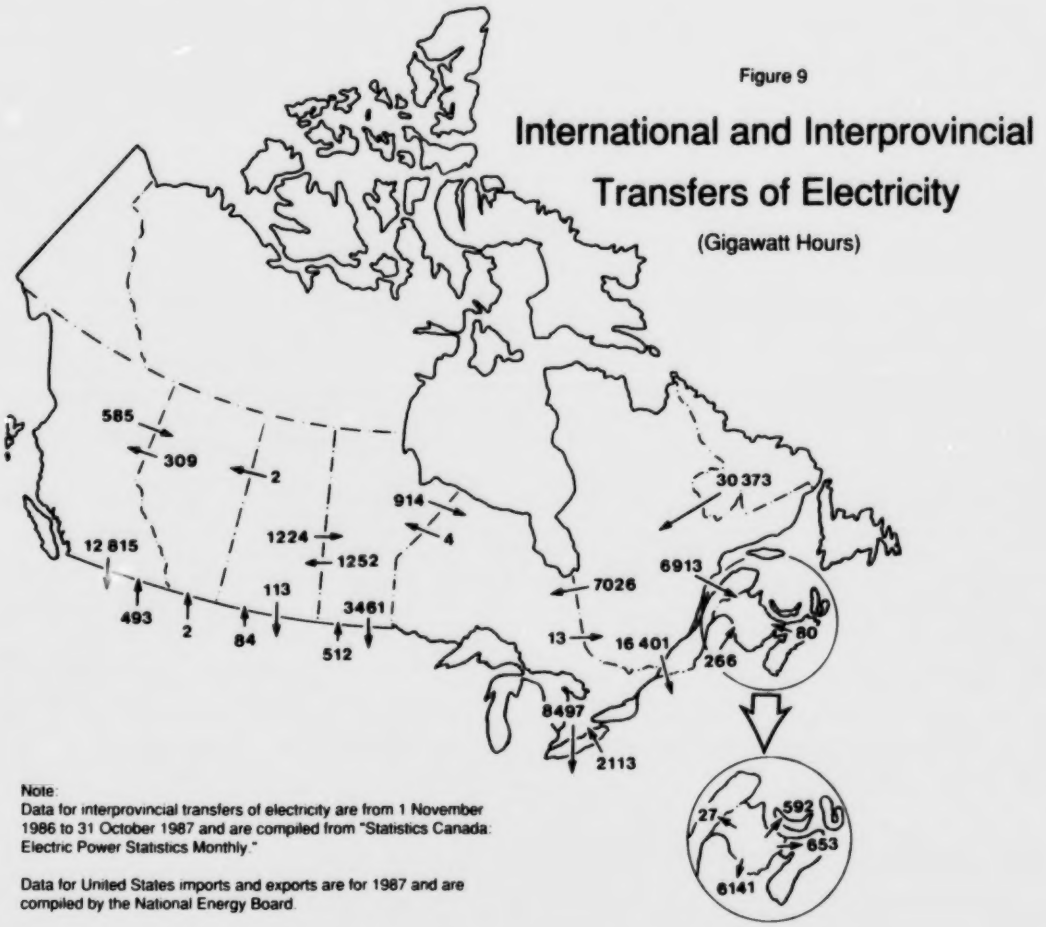
Generation and Consumption

Total generation of electricity in 1987 was an estimated 483 000 gigawatt hours, up six percent over 1986. Approximately 65 percent of the total was supplied from hydroelectric generation, 20 percent from conventional thermal generation and 15 percent from nuclear generation. Total Canadian consumption in 1987 is estimated to have been 438 000 gigawatt hours, an increase of four percent over 1986. Figure 8 illustrates the generation and disposition of Canadian electricity for the past five years.

Export Sales

1987 was a record year for electricity export volumes. Sales amounted to 45 359 gigawatt hours, an increase of 29 percent over 1986, surpassing the previous record of 41 500 gigawatt hours set in 1985. Revenue of $1.2 billion from 1987 electricity exports represented an increase of 12 percent over 1986, but it fell short of the record of $1.4 billion set in 1985. Export revenue in 1987 did

Figure 9



Note:
Data for interprovincial transfers of electricity are from 1 November 1986 to 31 October 1987 and are compiled from "Statistics Canada: Electric Power Statistics Monthly."

Data for United States imports and exports are for 1987 and are compiled by the National Energy Board.

Table 3

Canada - United States Electricity Exports
By Importing Region/State and Exporting Province
(Gigawatt hours)

To Region/State	From Province	Sales[1]
Maine	New Brunswick	4 097
Massachusetts	New Brunswick	1 813
Vermont	Quebec	1 914
	Ontario	264
	Total	2 178
New England[2]	Quebec	4 773
New York	Quebec	8 342
	Ontario	7 490
	Total	15 832
Michigan	Ontario	808
Minnesota	Manitoba	2 564
North Dakota	Manitoba	753
	Saskatchewan	55
	Total	808
Washington	British Columbia	1 682
Oregon	British Columbia	4 657
California	British Columbia	6 021
Other[3]	British Columbia	126
TOTAL		**45 359**

1 Excludes exchanges.
2 Exports are made to the New England Power Pool - the states receiving the energy cannot be accurately determined.
3 Includes Idaho, Montana, Nevada and Utah.

not increase as much as the volume, because electricity export prices, which are based in part on the avoided cost of the displaced electricity generated from oil, were still being affected by low world oil prices.

Almost all major exporting utilities increased their exports over last year's quantities. The exception was Manitoba Hydro, whose export quantities fell 50 percent from the previous year and which recorded its lowest level since 1980. This decrease resulted from a low spring run-off and a dry summer.

There were two main reasons for Canada's record electricity export volumes in 1987. The first was Hydro-Québec's access to a new

market, the New England Power Pool. Sales to this market, which had begun in late 1986, accounted for 85 percent of Hydro-Québec's increase in export volume in 1987. Hydro-Québec's export quantities and revenues were up 29 percent and 18 percent respectively over 1986. Once again it was the largest Canadian exporter of electricity.

The second reason for the large exports was the record sales made by B.C. Hydro, which totalled 11 637 gigawatt hours. Although this surpassed its exports in 1985, the previous record export year, the associated revenue of $192 million fell well short of the $281 million it received for the electricity exported in that year.

Figure 10

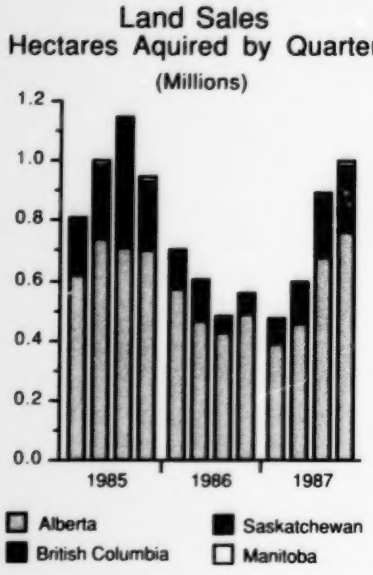


Figure 9 shows exports and imports in 1987 as well as interprovincial transfers for the 12 months ending October 1987. Table 3 shows, by province, the destination of all exports. The largest market in 1987 was New York State, which accounted for about 35 percent of all Canadian electricity exports.

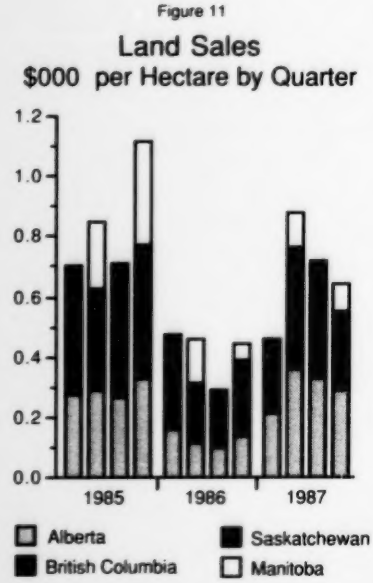
Oil and Gas Activity and Reserves

Exploration and Drilling Activity

Exploration and drilling activity in the Canadian oil and gas industry increased during 1987 over 1986. This resulted from the upturn in oil prices and the anticipation of a higher and more stable cashflow. While this increase was evident in the conventional areas of Canada, activity on Canada Lands remained at or below the 1986 levels.

All of the following major indicators of the health of the industry improved during the year: land sales and the numbers of geophysical crews operating, rigs drilling and wells completed.

Figure 11



Land sale results improved over 1986 both in terms of the amount of land acquired and the price paid. However, the levels reached in 1987 were still below those attained in 1985. During 1987, the industry acquired the rights to 2.9 million hectares, compared to 2.3 million hectares in 1986 and 3.9 million hectares in 1985 (Please refer to Figure 10). The average price per hectare in 1987 was $269, compared to $130 and $268 per hectare in 1986 and 1985 respectively (Please refer to Figure 11).

On an annual basis, geophysical activity in 1987 was only slightly above that in 1986. This was because the first quarter of 1986 experienced an unusually high level of activity prior to the exploration cutbacks caused by the collapse in world oil prices. The average number of crews operating per month for the period January 1985 to December 1987 is shown in Figure 12.

Drilling activity in Canada was marginally higher in 1987 compared with 1986. While the number of well completions were essentially the same in both years, there was an increase in the number of drilling rigs operating during the second and third

quarters of 1987. However, during the fourth quarter of 1987, drilling rig activity declined, primarily as a result of the termination of the Alberta five-year royalty holiday on successful exploratory oil wells.

The exploration highlight of 1987 was the announcement of Shell Canada's natural gas and condensate discovery at Caroline, Alberta, 120 kilometres northwest of Calgary. This discovery is important not only because of its size, but also because it indicates a new productive trend, along which additional discoveries can be anticipated.

Oil and Gas Reserves

The Board's estimate of remaining established reserves of conventional crude oil as of 31 December 1986 is 730.8 million cubic metres, 6.6 million cubic metres less than the estimate for year-end 1985.

Initial (before production) established reserves of conventional crude oil increased 62.4 million cubic metres through discoveries, extensions to reserves, and revisions to reserves estimates. Increases were recorded in all four western provinces.

The Board's estimate of remaining established reserves of marketable natural gas in the conventional producing areas as of 31 December 1986 is 75.3 exajoules, two exajoules lower than the estimate for year-end 1985.

Initial established reserves of natural gas increased 1.3 exajoules, reflecting increases in all conventional areas except the southern Yukon and Northwest Territories.

Figure 12

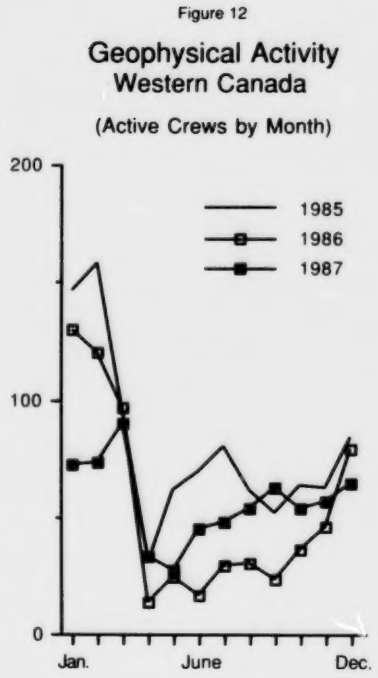


Table 4

Estimated Established Reserves of Conventional Crude Oil at 31 December 1986
(Millions of Cubic Metres)

	Initial	Remaining
British Columbia	84.5	19.7
Alberta	2086.5	559.2
Saskatchewan	447.4	113.0
Manitoba	34.8	9.8
Southern Yukon and Northwest Territories	35.2	28.1
Ontario and Other Eastern Areas	10.3	0.9
Total for Canada	**2698.6**	**730.8**

Figure 13

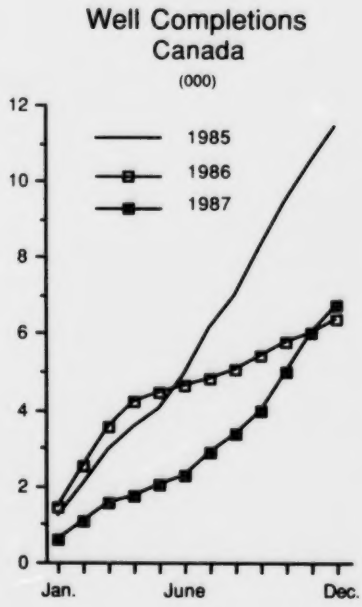


Figure 14

Canadian Rig Activity

(Number of Rigs Drilling per Week)

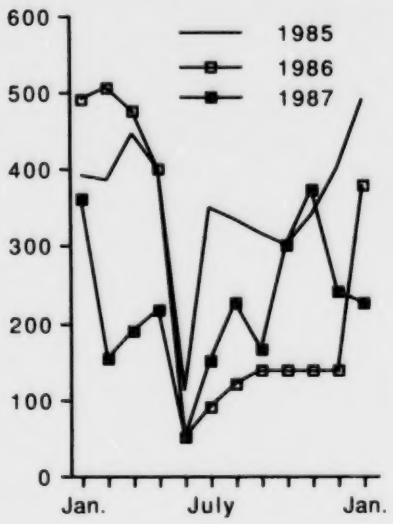


Table 5

Estimated Established Reserves of Marketable Natural Gas at 31 December 1986

(Exajoules)

	Initial	**Remaining**
British Columbia	16.0	8.8
Alberta	114.8	63.9
Saskatchewan	3.2	1.9
Southern Yukon and Northwest Territories	0.5	0.3
Ontario and Other Eastern Areas	1.5	0.4
Total Conventional Areas	**136.0**	**75.3**
Mackenzie Delta	5.6	5.6
Arctic Islands	12.0	12.0
Total for Canada	**153.6**	**92.9**

Figure 15

Crude Oil

Reserves Additions vs. Production

(Millions of Cubic Metres)

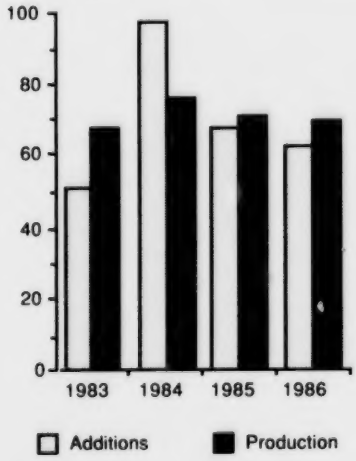
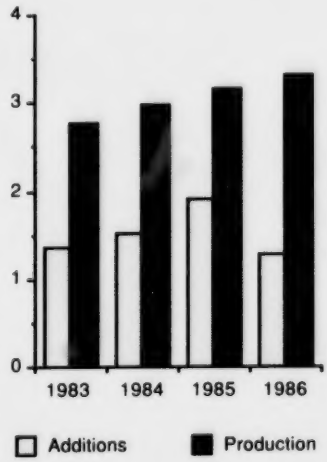


Figure 16

Natural Gas

Reserves Additions vs. Production

(Exajoules)



Board Activities

Hearings and Inquiries

During 1987, the Board conducted all or part of 15 hearings and inquiries in locations from Vancouver, British Columbia to Fredericton, New Brunswick, for a total of 172 hearing days.

This section summarizes the major decisions issued following public hearings and provides information on other applications before the Board during 1987.

Natural Gas Exports

Surplus Determination Procedures

One of the key responsibilities of the National Energy Board is to ensure that natural gas proposed to be exported is surplus to reasonably foreseeable Canadian requirements. The Board has discharged that responsibility by various means over the years.

In a hearing held in 1985, the Board reviewed the procedures it uses to determine natural gas surplus. In its report dated April 1986, the Board announced new procedures based on the ratio of reserves to production (the R/P Ratio Procedure).

By letter dated 29 October 1986, the Minister of Energy, Mines and Resources sought the Board's advice on the implications of changing conditions in natural gas markets "and the action the Board is prepared to initiate in respect of its natural gas surplus determination procedures to take account of a rapidly evolving market environment".

On 4 November 1986 the Chairman replied that the Board was prepared to undertake a comprehensive review.

This review was conducted by the Board as a whole. Input from interested parties was by written submission (some 50 parties provided submissions) and in the form of an oral hearing held before one member over 12 days in April and May 1987 in Ottawa, Calgary and Toronto.

The review centred upon two main questions:

- whether the R/P Ratio Procedure continued to be appropriate in the light of recent changes in the Canadian natural gas market, and
- what alternative procedures should the Board consider.

In September 1987, the Board issued its Reasons for Decision adopting a new procedure, the Market-Based Procedure, for determining the surplus of natural gas available for export. This replaced the R/P Ratio Procedure.

Under the new procedure, the Board decided it would act in two ways to ensure that natural gas to be licensed for export is surplus to reasonably foreseeable Canadian needs: one will be in the context of public hearings to consider applications for licences to export natural gas; the other will be by monitoring Canadian energy markets on an ongoing basis.

The public hearing portion of the Market-Based Procedure includes the following three components:

1) Complaints Procedure – In the public hearing process, the Board will consider complaints that Canadian users cannot obtain additional supplies of gas under contract on terms and conditions, including price, similar to those in the export proposal. If the Board finds merit in a complaint that Canadians have not been able to contract for gas on an equal basis, it may deny the application or defer issuing a final decision on it until an opportunity has been given for the situation to be rectified.

2) Export Impact Assessment – The Board will require applicants for export licences to file an impact assessment which will allow the Board to determine whether a proposed export is likely to cause Canadians difficulty in meeting their energy requirements at fair market prices.

3) Public Interest Determination – The Board will continue, as required by Section 83 of the *National Energy Board Act*, to have regard to all other factors it considers relevant in determining whether proposed export licences are in the national public interest.

As part of the monitoring function of the new procedure, the Board will continue to publish every two years its staff assessment, *Canadian Energy Supply and Demand*. The next edition of this report is expected to be published in late 1988. This assessment considers, among other things, the evolving shares of the energy market served by various energy forms - electricity, oil, natural gas, petroleum products, coal, and renewables - over a projection period of some 20 years. Also, on an ongoing basis, the Board will publish natural gas market assessments, analyzing natural gas supply, demand and prices.

Alberta Northeast Gas Export Project

In November 1986, Alberta Northeast Gas Ltd., in separate joint applications with each of TransCanada, ProGas, ATCOR, and AEC, asked the Board to consolidate and extend three existing natural gas export licences and to issue new licences for exports to the northeastern United States.

The Year at a Glance

Oil

- issued some 110 orders for the short-term export of oil
- oil pipeline capacity increased as Interprovincial completed its Board-approved expansion program
- in response to an application by Trans Mountain, designated methyl tertiary butyl ether (MTBE) and methanol as oil products, thereby permitting their transport by pipeline

Natural Gas

- approved 109 orders for short-term exports and imports and 46 for the transportation of natural gas in interprovincial trade
- adopted the "Market-Based Procedure" to ensure that proposed exports are surplus to reasonably foreseeable Canadian requirements, replacing the previous Reserves/Production Ratio Procedure
- granted four new licences to proponents of the Alberta Northeast Project, authorizing exports of up to 61 billion cubic metres
- issued a new licence to ProGas to export up to 517 million cubic metres per year for a 20-year period
- made a submission to the United States Federal Energy Regulatory Commission, stating the Board's concerns about FERC Opinion No. 256, which disallowed the recovery of certain Canadian pipeline transportation costs as negotiated in gas export contracts

Electricity

- inquired, at the Minister's request, into the federal regulation of electricity exports; the Board's response comprised the report of the three-member inquiry panel, outlining options, which the Minister made public, and a report conveying the full Board's conclusions and recommendations
- denied, on the basis of insufficient evidence, an application by Hydro-Québec to export 70 terawatt hours of energy; revised application considered in December
- approved an application by Manitoba Hydro to export 200 megawatts of firm power to Northern States Power Company
- increased the limits of orders for the export of electricity from 50 to 60 megawatts and from 250 to 400 gigawatt hours and for interruptible exports and exchanges from 250 to 1000 gigawatt hours

Canadian Energy: Supply and Demand

- initiated a study on the supply and demand of Canadian energy for the period 1987 to 2005; this study, to be published in late 1988, will update the staff's 1986 projections

Pipelines

- began hearings into a proposal by TransCanada to expand its system to meet the needs of existing domestic and export gas markets and to deliver new licensed exports to the northeastern United States
- inquired into an accident on the Sun pipeline near Sarnia, Ontario
- continued the review of recommendation 5.9 and consideration of other recommendations contained in the Board's 1986 report following an investigation of a fatal accident in 1985 on Interprovincial's pipeline near Camrose, Alberta
- continued its review of the regulations governing the crossing of pipelines by third parties; the revised regulations are expected to be issued in 1988
- signed a memorandum of understanding with Labour Canada, whereby Board inspectors were appointed safety officers by the Minister of Labour to administer Part IV of the Canada Labour Code within the pipeline industry under the Board's jurisdiction
- recorded no fatalities or serious injuries resulting from accidents on pipeline rights-of-way during 1987; a total of 38 incidents were reported during the year

Toll Regulation

- approved new tolls for Westcoast effective 1 January 1987 and 1 January 1988
- decided on tolls to be charged by TransCanada, effective 1 July 1987, that would remain essentially unchanged from the current tolls
- issued a decision on new tolls to be charged by Interprovincial effective 1 January 1987, resulting in an overall average increase in light crude oil tolls of about 20 percent
- authorized new tolls, effective 1 September 1987, that Trans-Northern may charge for the transportation of refined petroleum products
- established a new monthly toll that TQM may charge for the transportation of natural gas in Quebec
- decided to regulate the tolls of Alberta Natural Gas and IPL (NW) on a complaint basis

Legal Actions

- Federal Court of Appeal determined that Board did not have jurisdiction over a six-kilometre pipeline proposed to be built by Cyanamid in southwestern Ontario
- Federal Court of Appeal upheld the Board's decision that it has jurisdiction over certain ethane storage caverns in Windsor, Ontario
- Federal Court granted Northridge Petroleum Marketing, Inc. and ENRON Canada Ltd. leave to appeal the Board's decision on their complaints about tolls charged by TransCanada for gas sold under TransCanada's competitive marketing program agreements
- Federal Court allowed an appeal by the Township of Flamborough and the Regional Municipality of Hamilton-Wentworth relating to the imposition of terms and conditions in the Board's order that authorized Interprovincial to construct certain propane terminal facilities in the Flamborough, Ontario area; on Interprovincial's advice that it did not intend to proceed with the project, the Board revoked the order that authorized the facilities.

Regulatory Process

- initiated a comprehensive analysis of methods to improve the Board's hearings and implemented a number of initiatives; consultation with interested parties on other suggestions will continue in 1988

Work Force Adjustment

- reduced its staff from 433 to 358 person-years

In their applications, the companies requested Board approval to export some 61 billion cubic metres of natural gas to 19 gas distribution companies located in the New England, New York and New Jersey market areas. Exports would be for a 15-year period, starting 1 November 1988. Thirty-one billion cubic metres of the total volume had already been authorized for export under Licences GL-84, GL-85 and GL-88 held by TransCanada.

The Board held a public hearing in February 1987 and released its Reasons for Decision in April 1987. The Board granted four new licences, one each to TransCanada, ProGas, ATCOR, and AEC, with each licence being held jointly by Alberta Northeast Gas Ltd. These licences authorized the export at Niagara Falls and Iroquois, Ontario of up to 61 billion cubic metres of natural gas to the northeastern United States. In addition, two existing licences held by TransCanada were revoked and one amended.

ProGas Limited - Licence

In September 1986, ProGas requested a new licence to export natural gas to Ocean State Power over a 20-year period at Niagara Falls, Ontario. The gas would be used to fuel a new combined-cycle electrical generating plant that Ocean State is proposing to build at Burrillville, Rhode Island. The quantity to be exported would be up to 517 million cubic metres per year commencing May 1989.

The Board held a hearing on the application in Calgary in January and released its Reasons for Decision in February 1987 approving the requested licence.

Ocelot Gas Marketing Inc. - Licence

By application dated 30 October 1987, Ocelot Gas Marketing Inc. requested a licence for a 15-year term to export natural gas to its wholly owned subsidiary, Ocelot Gas Marketing (U.S.) Inc. The quantity to be exported would be 1.4 million cubic metres per day (50 million cubic feet per day), commencing 1 December 1987, or as soon as approval had been obtained for transportation of the gas via Foothills Pipe Lines (Yukon) Ltd. and Northern Border Pipeline Company.

Subject to the filing of further information by Ocelot, the Board expects to hear the application in 1988.

Pan-Alberta Gas Ltd. - Extension of Licence

By application dated 21 May 1987, Pan-Alberta applied for an extension of Licence GL-96 from 31 October 1996 to 31 October 2012 and an increase of 45.6 billion cubic metres in the total quantity authorized under the term of the licence.

In December 1987, the Company filed a revised application.

A public hearing is expected to be held early in 1988.

Alberta and Southern Gas Co. Ltd.

In November 1987, the Board received an application from Alberta and Southern to vary gas export Licence GL-99 and to authorize an increase of 169.3 billion cubic metres in the total quantity of gas to be exported. This application supersedes an application made by the company in 1985.

The application as filed is incomplete. The company expects to file additional gas reserve information, market information, and an export impact assessment in early 1988.

Highlights of the Pipeline Companies Under National Energy Board Jurisdiction

	1987 Rate Base[1] ($000,000)	1987 Revenue Requirement ($000,000)	Length (Including Loops) (km)	1987 Actual Throughput
GROUP 1[2]				
Gas				($10^6 m^3$)
Alberta Natural Gas Company Ltd	17	25	172	13 717
Foothills Pipe Lines (Yukon) Ltd.	735	182	849	7 494
Trans Québec & Maritimes Pipeline Inc.	397	77	341	2 613
TransCanada PipeLines Limited	2 558	1 220	10 599	32 740
Westcoast Transmission Company Limited	789	258	4 443	8 900
Oil				($10^3 m^3$)
Cochin Pipe Lines Ltd.	59	25	1 125	3 151
Interprovincial Pipe Line Limited	563	237	6 652	77 692
Interprovincial Pipe Line (NW) Ltd.	331	80	868	1 562
Trans Mountain Pipe Line Company Ltd.	68	44	1 328	26 225
Trans-Northern Pipelines Inc.	45	26	847	8 563
GROUP 2				
Total	96	60	3 111	N/A

1 Net plant or equivalent, including working capital.
2 Group 1 consists of the ten major pipeline companies. The remaining companies have been designated as Group 2 companies.
Source: Preliminary estimates obtained from the pipeline companies.

Electrical Matters

Regulation of Electricity Exports

In November 1986, the Board commenced an inquiry into the federal regulation of electricity exports.

The inquiry resulted in part from a request by the Minister of Energy, Mines and Resources that the Board report to him on the changes that might be made to reduce and simplify the regulation of electricity exports and international power lines.

As part of the inquiry, a public hearing was held in November and December 1986 in Ottawa, Fredericton and Vancouver. Fifty-two parties took part in the hearing.

The Board examined a number of issues:

- the rationale for regulation, i.e., divergences between the public and private interests resulting from the presence of monopoly or market power, the imposition of external or indirect costs, and the existence of costs to be borne by future generations;
- the existence of any overlap of federal and provincial regulation and ways to reduce it;
- the method used to determine whether electricity to be exported is surplus to Canadian requirements;
- the appropriateness of the Board's current price guidelines;
- the terms of licences, now limited to twenty-five years;
- the reduction, where possible, of the information that must be supplied by applicants for licences and certificates;
- whether exports of electricity generated from imported energy sources should be exempt from regulation by the Board;
- transmission access for Canadian exporters that do not have direct access to potential American purchasers;
- the treatment of surplus, export price and other public interest considerations related to long-term export proposals which may involve prebuilt or dedicated facilities; and
- The criteria applicable to certification of international power lines.

The Board's response to the Minister was provided on 9 July 1987. It comprised a report of the three-member inquiry panel, outlining options, which was made public by the Minister on 16 July 1987, and a report of the full Board conveying its conclusions and recommendations.

The Manitoba Hydro-Electric Board - Export Licence

In June 1987 the Board held a public hearing in Winnipeg, Manitoba on an application dated 20 January 1987 by Manitoba Hydro for a licence to export firm power and energy to Northern States Power Company of Minneapolis, Minnesota.

In September 1987, the Board issued its Reasons for Decision approving a licence authorizing the export of up to 200 megawatts of firm power with a maximum of 883 gigawatt hours of energy annually during the summer months from 1993 to 1996 inclusive.

Hydro-Québec - Export to New England Utilities

In December 1985, the Board received an application from Hydro-Québec for a licence to export 70 terawatt hours of electrical energy over a 10-year period commencing in 1990 to New England Utilities. The delivery period could be extended for a further four years to permit delivery of any remaining energy not delivered before 31 August 2000.

The public hearing into the application was held in Montreal for eight days in March 1987 and in Ottawa for four days during April.

In June, the Board issued its Reasons for Decision denying the application. The Board found that the evidence presented by Hydro-Québec was insufficient to demonstrate

- that the energy proposed to be exported was surplus to reasonably foreseeable Canadian requirements for use in Canada; and
- that the export price was not less than the price to Canadians for equivalent service in related areas.

A utility requesting an export licence is required, under the *National Energy Board Act* and regulations, to furnish this information.

In complying with this requirement, it has been normal practice for utilities proposing to export electricity to first offer this electricity to neighbouring provinces at a price that is no higher than the export price for comparable service. Refusals of such offers have been taken by the Board as an indication that Canadian utilities do not require the electricity proposed to be exported.

Hydro-Québec failed to make such offers to its neighbouring utilities in Ontario, New Brunswick and Newfoundland, and did not provide any other evidence sufficient to satisfy the Board that the energy proposed to be exported was surplus to Canadian needs and that the price was just and reasonable in relation to the public interest.

In August, Hydro-Québec filed a new application for a licence to export 70 terawatt hours of firm energy to New England Utilities for a period of 10 to 14 years starting in 1990. In its application, Hydro-Québec stated that, in compliance with the Board's earlier

Expeditious Regulation

During 1987, the Board continued to consider the applications it received with all due expedition. Most short-term gas export applications were considered within three days of receipt; applications requiring a public hearing, of course, required a longer period for their consideration: gas licence applications were processed in about five months, pipeline facilities applications required an average of six months, and pipeline toll applications some eight months.

decision, it had offered the energy proposed to be exported to directly interconnected Canadian utilities.

A public hearing into the application was held during December 1987. A decision on the application is expected early in 1988.

Maine and New Brunswick Electrical Power Company, Limited - Export Licence

By application dated 17 September 1987, Maine and New Brunswick requested a licence to export 37 megawatts of firm power and 200 gigawatt hours of energy in any consecutive 12-month period over a 20-year period to its parent company, Maine Public Service Company of Presque Isle, Maine.

The Board intends to hold a public hearing on this application in the spring of 1988.

Hydro-Québec - Exports to Vermont Joint Owners

By application dated 29 June 1987, Hydro-Québec requested a licence to export up to 50 megawatts of firm power and 438 gigawatt hours of firm energy to Vermont Joint Owners for the period 1 March 1988 to 31 October 1990.

Following the filing of additional information, the Board intends to hold a public hearing on this application in January 1988.

Pipeline Facilities

Cyanamid Canada Pipeline Inc. - Facilities

In August and September 1986, the Board held a public hearing on two applications by Cyanamid Canada Pipeline Inc. (Cyanamid Pipeline), a wholly owned subsidiary of Cyanamid Canada Inc. (Cyanamid). Cyanamid Pipeline applied pursuant to section 49 of the *National Energy Board Act* for authorization to construct a six-kilometre pipeline from the TransCanada pipeline at Black Horse Station to the Cyanamid plant near Welland, Ontario. This facility would effectively bypass the facilities which are owned and operated by The Consumers' Gas Company Ltd. currently servicing the Cyanamid plant. Cyanamid Pipeline also applied pursuant to subsection 59(3) of the *National Energy Board Act* for an order of the Board directing TransCanada to connect its pipeline to the proposed Cyanamid pipeline.

The two principal issues addressed during the hearing were the question of whether the Cyanamid pipeline was within the Board's jurisdiction and, if so, whether the bypass proposal had merit from a public interest perspective.

The Board issued its Reasons for Decision in January 1987. The Board approved the construction of the six-kilometre pipeline after having determined that the pipeline was under Board jurisdiction.

Several legal proceedings followed, in one of which the Federal Court of Appeal ruled that the Board did not have jurisdiction over the pipeline. For a description, please refer to *Legal Actions*.

TransCanada PipeLines Limited - 1988 and 1989 Facilities and Toll Design

In June 1987, TransCanada filed an application for authorization to expand its natural gas pipeline system in central Canada to meet the needs of existing domestic and export markets and to deliver new licensed exports to the United States.

In July the Board set the application down for hearing and indicated that it would also consider the toll design and the method of cost allocation for the new facilities.

In July, KannGaz sought a Board order directing TransCanada to construct the facilities required to transport export volumes of natural gas for KannGaz to export markets in the United States. In August 1987, the Board decided this application would be heard in conjunction with the TransCanada application.

The hearing began on 16 November 1987 in Ottawa and continued into 1988; a decision is expected by mid-year.

Trans Mountain Pipe Line Company Ltd. - Facilities and Toll Design

In September 1987, Trans Mountain filed an application for approval of a major expansion of its pipeline system in British Columbia and Alberta, the related toll design for the expanded system, and refinements proposed to the existing toll design.

The company proposes to carry out its expansion in two stages. The Stage 1 facilities would allow Trans Mountain to transport increasing volumes of heavy crude oil, while it continues to meet its commitments to supply light crude oil to Vancouver refineries and refined products to Kamloops. The applied-for facilities include additional tankage at Edmonton and Burnaby, two new pump stations, and extensive additions and modifications to seven existing pump stations. Trans Mountain has projected that the facilities would be completed in late 1989, at a cost of some $57 million.

The Stage 2 facilities would accommodate the possible shipment of other products, such as methanol or methyl tertiary butyl ether, used to increase the octane level in motor gasoline.[1] These facilities would be undertaken only when there is reasonable assurance that the shipments will materialize. The Stage 2 facilities, expected to cost some $27 million, include the construction of three new pump stations and the reactivation of two idle loops, each 762 millimetres in diameter, totalling 82 kilometres in length.

The Board has set the application down for public hearing in Vancouver commencing in February 1988.

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1 See *Legislation and Regulations* for a description of the *Oil Product Designation*

Manitoba Oil and Gas Corporation - Transportation Services

In May, Manitoba Oil and Gas applied to the Board to direct TransCanada to transport natural gas purchased directly from gas brokers and producers in British Columbia, Alberta and Saskatchewan to Manitoba for a three-year period starting 1 November 1987 and to set the tolls to be charged for the transportation service. The gas volumes to be transported would in essence have displaced all volumes presently being purchased by each of the two distributors serving Manitoba, namely ICG Utilities (Manitoba) Ltd. and Greater Winnipeg Gas Company.

The Board held a public hearing in Winnipeg, Manitoba from 9 to 15 September 1987 and announced on 25 September that it had denied the application, with reasons for the decision to follow.

In October 1987, the Board issued its Reasons for Decision in which the Board stated its conclusion that the transportation arrangements proposed by Manitoba Oil and Gas constituted self-displacement of presently contracted firm supply and were not in the public interest.

Manitoba Oil and Gas later appealed the Board's decision to the Federal Court of Appeal. Further information is provided in *Legal Actions*.

Tolls and Tariffs

TransCanada PipeLines Limited - 1987 Tolls

In February 1986, TransCanada applied to the Board for new tolls effective 1 August 1986. The company refiled its application to comply with the Board's decision to set tolls based on a test year which conformed with the company's fiscal year.

The main features of TransCanada's application included an increase in its revenue requirement of some 10 percent over the 1986 authorized amount, an increase in the utility's deemed common equity ratio from 30 to 35 percent and a continuation of its 14.5 percent authorized rate of return on equity.

The public hearing into the new tolls began in September 1986 and concluded in February 1987. The hearing also dealt with the allocation for toll purposes of the approved cost of service of Trans Québec & Maritimes Pipeline Inc. (TQM), the implementation of an operating demand volume methodology and related matters flowing from the decision on the availability of services on the TransCanada pipeline[1], and various applications for final orders under subsection 59(2) of the *National Energy Board Act* requiring TransCanada to provide transportation services for certain direct purchases.

In June 1987, the Board released its Reasons for Decision. The Board decided that the tolls to be charged by TransCanada, effective 1 July 1987, would remain essentially unchanged from the

1 National Energy Board Reasons for Decision, May 1986.

current tolls as a result of a decision to hold the company's revenue requirement for 1987 at the 1986 level.

The Board denied the company's request to increase the equity component in its capital structure from 30 to 35 percent and authorized a rate of return on equity of 13.25 percent for 1987.

The Board decided that, effective 1 November 1987, TransCanada would offer two tiers of interruptible service, to be called IS-1 and IS-2. The IS-1 toll equalled the average firm toll at 80 percent load factor, and the IS-2 toll equalled the average firm toll at 90 percent load factor.

The Board did not accept proposals to treat the TQM revenue requirement differently from what has been the case historically and continued to regard the inclusion of TQM's costs in TransCanada's revenue requirement as being appropriate for toll purposes.

The Board found it appropriate to allow shippers the option of providing their own fuel as it would be consistent with the market-responsive pricing system called for by the *Agreement on Natural Gas Markets and Prices* of 31 October 1985. The Board directed TransCanada to file a tariff amendment which would allow shippers using the TransCanada system the option of supplying their own fuel gas by 1 November 1987, and required TransCanada to call for tenders on the supply of fuel gas not supplied by shippers.

The Board provided additional guidance on the operating demand methodology first announced in the Board's May 1986 TransCanada Reasons for Decision. The Board confirmed that there would be no automatic reversion of pipeline capacity to distributors upon termination of direct displacement sales. The Board decided that displacement volumes should be prorated among all long-term firm sales and transportation services being purchased by the distributor from TransCanada at the time the displacement occurs. The Board decided that it would consider the need for operating-demand relief for loads lost to interruptible service on a case-by-case basis.

In mid-July 1987, the Board received applications from the Independent Petroleum Association of Canada, Inland Cement Limited and Northridge Petroleum Marketing, Inc. requesting the Board to review portions of its May 1987 decision with respect to the level of interruptible tolls to be charged by TransCanada. In October, the Board denied the applications for review.

Also in July 1987, TransCanada requested a clarification of the Board's decision on prorata reductions to operating demand volumes. A review of the facts presented raised concerns as to the correctness of the Board's original decision. Accordingly, the Board decided to review its decision.

As a result of this review, the Board decided that the wording of its decision could result in the discriminatory treatment of different gas supplies, and in September issued an order altering the existing wording.

In October, TransCanada proposed that all shippers be required to provide their own fuel and requested the Board to review and rescind its decision on tendering for fuel. The Board rescinded its decision in November and decided to re-examine the need for tendering at TransCanada's next toll hearing. However, the Board did decide that shippers should have the option of providing their own fuel.

In November, PSR Gas Ventures Inc. applied for a review of the decision on the pro rata reduction methodology and for an order concerning PSR's operating demand volume under its long-term transportation agreement with TransCanada. As of year-end, the matter was still under consideration.

TransCanada PipeLines Limited - 1988 Tolls

In December 1987, TransCanada filed an application for 1988 tolls. The Board decided to make the existing tolls interim until it had sufficient time and an adequate opportunity to consider the company's case. A hearing on the application is expected in 1988.

Westcoast Transmission Company Limited - Tolls

-Export Interruptible Sales Toll

In December 1986, Westcoast applied for new tolls to be effective for 1987. In its application, Westcoast requested authorization to distribute to the export sales tollpayers the revenues received during 1986 and to be received in the 1987 test year from the application of the Export Interruptible Sales Toll (EIST). Based on conditions in the market of its export customer, Westcoast forecast that EIST revenues in 1987 would amount to $26.5 million. Intervenors and the company requested an early decision respecting this issue.

A public hearing to deal with this issue was held in Vancouver in March 1987. In its April 1987 Reasons for Decision, the Board denied Westcoast's application to have the EIST suspended or rescinded and directed that the EIST revenues be credited to Westcoast's overall cost of service.

-Tolls for 1987 and 1988

In December 1986, Westcoast applied to the Board for new tolls to be effective for a test year commencing 1 January 1987. In the interest of conducting a more efficient proceeding by avoiding a separate public hearing for 1988 tolls, the Board subsequently requested Westcoast to consider amending its application to cover a period of two test years. Westcoast complied and filed a revised application for two test years, 1987 and 1988.

The main features of Westcoast's application included an increase in the rate of return on common equity from 13.75 to 14.5 percent, changes to the toll design for Zones 1, 2 and 3, and changes to the

general terms and conditions with respect to force majeure and other matters. Late in these proceedings, Westcoast applied for several additional changes to its toll design in conjunction with amendments to its contractual arrangements with its export customer, Northwest Pipeline Corporation. In its application, Westcoast requested a total revenue requirement of $265.6 million for 1987 and $267.9 million for 1988. This compares to the actual 1986 revenue requirement of $257.9 million.

A public hearing lasting 45 days opened in Vancouver in May and concluded in Ottawa in September.

In December 1987, the Board released its Reasons for Decision. The Board approved Westcoast's request that the equity ratio remain at 35 percent but denied the requested increase for return on common equity, approving 13.5 percent for 1987 and 13.75 percent for 1988.

The Board approved a total revenue requirement of $262.8 million for 1987 and $275.5 million for 1988. In arriving at these amounts, the Board approved the company's 1987 salary and wage increases, but reduced the 1988 increases from 5.5 to 4.5 percent. The Board also directed Westcoast to determine pension expenses in accordance with the recommendation of the Canadian Institute of Chartered Accountants.

With regard to toll design matters, the Board found the contract demand (CD) volumes contained in Westcoast's gas sales and firm service contracts to be an appropriate basis for allocating fixed costs. Also, the Board accepted as reasonable the lower CD levels for the export market specified in the new Westcoast/Northwest Agreements in light of the circumstances of the export market. For the domestic market, the appropriate basis for allocation was found to be the CD levels in the relevant sales and service contracts.

The Board accepted as an interim measure, effective 1 November 1987, the toll design modifications underpinning the new Westcoast/Northwest Agreements. These modifications included Westcoast's proposal to credit interruptible revenues to the domestic or export market depending on the destination of the gas.

The Board found that the operating demand methodology first applied to TransCanada was appropriate for Westcoast and that the methodology should be applicable to the domestic and export markets. In addition, the Board accepted the modified toll design for each of Zones 1, 2 and 3, denied Westcoast's requested amendments to the force majeure and demand charge credit provisions, but amended the existing provisions to reduce the potential liability faced by Westcoast.

Interprovincial Pipe Line Limited - Tolls

In December 1986, the Board opened a public hearing on an application by Interprovincial for, among other things, new tolls to be

charged for the transportation of crude oil and other liquid hydrocarbons effective 1 January 1987. Later that month, the Board authorized interim tolls to be charged by Interprovincial effective 1 January 1987.

During the hearing, which concluded in March 1987, the Board's examination included the suitability of Interprovincial's proposed toll design methodology for propane service from Sarnia to Millgrove, Ontario; the appropriate toll design methodology related to the potential conversion of the Sarnia-to-Montreal portion of the Interprovincial line for the transportation of natural gas liquids; and, the matter of an appropriate capacity-related surcharge for medium and heavy crude oil.

In August 1987, the Board released its Reasons for Decision on the application. The decision resulted in an overall average increase of approximately 21 percent in 1987 test-year light crude oil tolls over the 1986 levels. Interprovincial had applied for an increase of 29 percent.

The Board authorized a return on common equity of 13.25 percent, 125 basis points below the applied-for rate of 14.5 percent, and reduced the deemed common equity ratio from 42.5 percent to 40 percent.

Interprovincial transports a number of different hydrocarbons, and its toll design is structured so that tolls for all hydrocarbons are established relative to the toll for light crude. This is achieved by the use of surcharges, or credits, to the base light crude toll.

With respect to the proposed propane project, Interprovincial applied to have the costs associated with the project allocated between the light-crude base and a propane surcharge in accordance with the methods currently employed by the company. The Board approved this proposal, but rejected a second aspect, Interprovincial's percentage surcharge proposal, which would have involved temporary cross-subsidization between propane shippers and other shippers on its system. The Board found that, if Interprovincial wished to implement toll levelling for the propane surcharge in order to make the service more attractive, the mechanism must not result in cross-subsidization among shippers.

Regarding the possible conversion of the Montreal Extension, Interprovincial proposed that the costs associated with the project be allocated between the light-crude base and a natural gas liquids surcharge in a manner similar to that employed for existing natural gas liquids and refined products service. The Board approved this aspect of the application, but rejected the company's proposal that those costs of the project associated with the natural gas liquids surcharge be added to the natural gas liquids revenue requirement for existing natural gas liquids service on the Older System. The Board found that there should be a separate natural gas liquids surcharge determination for the service on the Montreal Extension.

On the question of capacity-related surcharges, the Board found that flows of medium and heavy crudes resulted in reduced capacity of the Interprovincial system and directed that capacity surcharges of 5 and 15 percent be applied to medium and heavy crudes, respectively. Further, Interprovincial was directed to study methodologies which may be used to assess the level of capacity surcharges for all hydrocarbons transported on the system.

Trans-Northern Pipelines Inc. - Tolls

As a result of the declining trend in interest rates in the latter part of 1986, the Board became concerned about the continued appropriateness of the 15.75 percent return on common equity approved for Trans-Northern and decided to review the company's tolls.

In January 1987, the Board made the existing tolls interim and directed Trans-Northern to file certain cost of service, throughput, rate of return and income tax information. In response, the company filed a Class 3 toll adjustment application for new tolls. The application sought a 4.2 percent increase over the previously approved revenue requirement, and included a requested rate of return on common equity of 14.75 percent. The Board decided to examine the application by soliciting written submissions.

In August, the Board issued its Reasons for Decision authorizing new tolls effective 1 September 1987. The new tolls were on average 2.3 percent less than the existing tolls and reflected a rate of return on equity of 13.75 percent on an equity component in the capital structure which remained relatively unchanged at about 51 percent.

Trans Québec & Maritimes Pipeline Inc. - Tolls

After receiving TQM's application for 1987 tolls, the Board made TQM's existing toll interim. Then, with a view to improving the efficiency of the hearing process by eliminating the need for a separate proceeding for 1988 tolls, the Board suggested to TQM that it amend its initial application to include both 1987 and 1988 test years. TQM agreed and filed the necessary application in April 1987. To streamline the process further, it was decided to limit the oral hearing to the issues associated with rate of return, with all other issues being addressed by means of written submissions.

TQM applied for a 1987 toll that was 4.5 percent lower than the existing 1986 toll and a 1988 toll that was 4.9 percent lower than that requested for 1987. The Board approved tolls that were lower than the requested tolls by 2 percent and 2.7 percent, respectively.

The Board denied TQM's request for returns on equity of 14.75 percent for 1987 and 15 percent for 1988, allowing instead 13.5 percent and 13.75 percent, respectively, for the two years. The Board also denied the company's request to allow the equity portion of its capital structure to rise to 28 percent over the two test years from the 25 percent level at which it had remained since the beginning of operations in 1983.

In its decision, which was released in December 1987, the Board authorized a monthly toll of $6.392 million for the 1987 test year and a monthly toll of $6.038 million for the 1988 test year. The previous monthly toll had been $6.832 million.

Foothills Pipe Lines (Yukon) Ltd. - Tariff

In June 1987, Foothills applied for amendments to its natural gas transportation tariff to allow the introduction of interruptible service. The Board held a public hearing in Ottawa during October 1987. A decision on the application is expected to be released early in 1988.

In December, the Board approved a request from Foothills for an interim order permitting the company to establish interruptible service on the Saskatchewan segment of its pipeline system (Zone 9) at the rate and under the terms and conditions contained in its application.

Inquiries

Sun Pipe Line Company Limited - Sarnia, Ontario Accident Inquiry

In October 1986, an accident on Sun's products pipeline near Sarnia, Ontario, resulted in injuries to four persons who were working on the site. The line was ruptured and the escaping butane ignited. Two private residences near the site were damaged by fire.

The Board's inquiry was held in Sarnia, Ontario in February 1987.

In April, the Board released its report on the inquiry which itemized the remedial steps to be undertaken by Sun in order to promote the safer operation of the pipeline in Canada.

The remedial steps include revising the company's safety procedures, increasing the inspectors' responsibilities, reinforcing the provision of safety-related information to contractors and sub-contractors, and investigating the feasibility of placing low vapour pressure products in the pipeline prior to excavation.

Interprovincial Pipe Line Limited - Camrose, Alberta Accident Inquiry

In October 1986, Interprovincial requested a review of the Board's decision to adopt recommendation 5.9 made by the Board's panel investigating a fatal accident in 1985 on the company's pipeline near Camrose, Alberta. The recommendation required pipeline companies under Board jurisdiction to remove all welds in certain circumstances and to check the soundness of a sample of welds in others.

On 23 October 1986, the Board decided to grant the review and sought the views of interested parties on the process to be followed for the review. The Board then held a preliminary meeting with

parties in January 1987 in Calgary to discuss the procedure to be followed for the review.

In a related matter, the Board invited industry to submit comments on all the recommendations in the inquiry panel's report other than recommendation 5.9. (Please refer to *Legislation and Regulations.)*

Industry made written submissions to the Board on six of the other recommendations in early October 1987, and plans to make written submissions on the remainder of the recommendations by early 1988. Because industry's submission to the review of recommendation 5.9 is dependent upon the Board's decision on several of the other recommendation industry has decided to delay some of its field studies until the summer of 1988. On completion of its field studies, industry may hold a technical conference and plans subsequently to submit its new evidence and argument to the Board for consideration. It is anticipated that this material will be available in the early fall of 1988. The Board expects to then conduct its review and has reserved its decision on whether to hold a public hearing for that purpose.

Other

Westcoast Transmission Company Limited - Declaratory Order

In September 1987, Westcoast applied to the Board for a declaratory order concerning certain aspects of its pipeline system and its tolls. The Board subsequently requested interested parties to comment on Westcoast's application. The Board issued a letter on 30 November 1987 which contained certain findings concerning the Westcoast pipeline system and its tolls.

Other Board Activities

Oil

Orders

Since 1 June 1985, the effective date of the *Western Accord*, oil exports have been authorized by Board orders which specify neither volumes nor prices. During 1987, the Board renewed export orders to some 100 companies and issued new orders to 10 companies for the export of light and heavy crude oil and petroleum products. The Board continues to monitor export volumes and prices.

Pipeline Space Apportionment

In October, Interprovincial filed an application with the Board to modify the procedure it uses to allocate pipeline space on its system. The proposed apportionment procedure is similar to the current system except there would be no distinction made between crude oil tenders and petroleum product or natural gas liquids tenders. The combined tenders would be allocated on the basis of the total capacity of the pipeline system's three lines. As of the end of 1987, this application was still under review by the Board. It was approved in early 1988.

Staff Studies

In 1987, Board staff prepared two studies related to the supply and demand outlook for oil. These were entitled *Ontario Oil Supply Logistics 1986-2005* and *Crude Oil and Equivalent Supply-Demand, Medium-Term Outlook 1987-1990*.

Natural Gas

Changes in Procedures for Natural Gas Exports

The Board continued during 1987 to review all changes to export sales contracts pursuant to its responsibility under subsection 35(2) of the *National Energy Board Part VI Regulations*. In this regard, the Board's review ensured that any proposed changes satisfied the government's criteria for acceptability which require that export sales contracts contain provisions which permit adjustments to reflect changing market conditions; that exporters demonstrate that export arrangements provide reasonable assurance that the gas contracted will be taken; and that the arrangements are supported by the producers and the producing province supplying gas to the project.

The Minister of Energy, Mines and Resources, by letter dated 24 June 1987, asked the Board to reinstate a criterion for acceptability that had been removed at the time the *Agreement on Natural Gas Markets and Prices* was implemented. Because of the concern the Minister had about the implications of the United States

Federal Energy Regulatory Commission's Order No. 256 which disallowed the as-billed pass-through of some Canadian demand charges by American importers, he asked the Board to review all contract amendments and new contracts and to provide advice on whether the revenue generated by each export licence on an annual basis is sufficient to recover the intraprovincial and interprovincial transportation costs in Canada and to netback an acceptable price to the producers supplying the gas.

Propane and Butanes

In 1987, the Board continued to authorize exports of propane and butanes through the issuance of export orders and licences. No quantity or price restrictions are placed on exports of propane and butanes under export orders. However, to ensure that supplies of propane and butanes are adequate to meet domestic requirements, the Board continued to monitor Canadian supply and demand, and export quantities and prices.

Ethane

For purposes of export regulation, ethane is subject to the same criteria as is natural gas. No licences or orders were issued for the export of ethane during 1987.

Electrical Activities

During 1987, the Board continued to act in its advisory role, informing the Minister of Energy, Mines and Resources of the status of electricity exports. The Board also continued to consult with and contribute to other government departments and industry groups in both Canada and in the United States which coordinate the operation of electric power utilities throughout North America.

Among other activities, the Board provided several companies with copies of its CANEBEX computer program which calculates the economic benefits of economy energy interchanges between power systems. Work continued on the development of an improved version of the program which models the interconnections of five power systems. At the end of the year, testing was in progress.

Also, the Board agreed to advise Environment Canada - Parks on dealing with an application it received from Newfoundland and Labrador Hydro to construct a 138-kilovolt transmission line in Gros Morne National Park.

Energy Studies

The Board announced that during 1988 its staff would be updating the projections of Canadian energy supply and demand which were published in the October 1986 staff report, *Canadian Energy Supply and Demand 1985 - 2005*.

This updating of the 1986 staff report will be separate and distinct from any of the Board's regulatory activities.

It is intended that the report, which will cover the total energy outlook for Canada for the period 1987 to 2005, be published in the fall of 1988.

Pipeline Activities

The Board regulates 43 gas, oil and products pipeline companies. These pipeline systems are shown in Figures 17 and 18.

All new pipeline facilities must be authorized by the Board prior to their construction. The Board is responsible for monitoring the construction, operation and abandonment of pipeline facilities to ensure compliance with the Board's safety and environmental regulations and any specific conditions of the approving order or certificate. In addition, the Board reviews construction and operation costs to ensure that the tollpayer receives cost-effective service.

As part of the monitoring of the safe operation of pipelines, the Board reviewed various reports on subjects such as Interprovincial's methods for connecting replacement sections to the operating pipeline, TransCanada's investigation of stress corrosion cracking, pipeline integrity on the TransCanada and Interprovincial pipelines, and safety audits of various companies' operating practices under emergency and normal conditions.

In order to monitor the construction of pipeline facilities, the Board conducted inspections of several construction projects including the replacements between Edmonton, Alberta, and Regina, Saskatchewan, on the Interprovincial pipeline system, the 6.7-kilometre loop near Hamilton, Ontario on TransCanada's system and the 12-kilometre interconnection near Richardson, Saskatchewan of the systems of Petroleum Transmission and Cochin.

Following the signing in January 1987 of a memorandum of understanding between Labour Canada and the Board, 15 Board inspectors were appointed safety officers by the Minister of Labour to begin administering Part IV of the *Canada Labour Code*, effective 23 February 1987, within the pipeline industry that is under the Board's jurisdiction. To enable these safety officers to effectively administer and enforce the responsibilities identified by the memorandum, they received training by Labour Canada in its occupational safety and health requirements. The term of the agreement between Labour Canada and the Board is one year and will be renewed from year to year unless terminated in accordance with the provisions therein. The Board may terminate the agreement upon twelve months' written notice to the Minister of Labour.

During the past several years, the Board has been placing greater emphasis on the Canadian Standards Association (CSA) standards as the accepted criteria for the design, operation, maintenance and abandonment of oil and gas pipelines. Because of this, the Board increased its participation during 1987 in CSA activities at the subcommittee and working group levels. By participating in the review, revision and development of CSA standards, the Board is

Figure 17

Oil and Oil Products Pipeline Companies Regulated by the National Energy Board

Figure 18

Gas Pipeline Companies Regulated by the National Energy Board

able to maintain an awareness of technological advances affecting requirements of the standards and the rationale behind changes to the standards as well as making its views known when changes are considered.

Approvals

Interprovincial received approval to increase the capacity of its system in western Canada. The new facilities include some additions and modifications to existing pump stations, installation of new tanks and the reactivation of 283 kilometres of an existing line between Cromer and Gretna, Manitoba. The Board also approved an application by Interprovincial to replace 87 kilometres of pipe between Edmonton, Alberta and Regina, Saskatchewan as part of its line integrity program.

Westcoast received approval to build the 6.6-kilometre Alces Pipeline and meter station in the Boundary Lake area of northeastern British Columbia. Westcoast also received approval to purchase and expand the Sikanni Gas Processing Plant, located in the Pink Mountains area of British Columbia.

TransCanada was given approval to build additional facilities on the St.-Mathieu extension, located near Montreal, Quebec. The facilities include a 6.9-kilometre line and compressor units.

The Board approved an application by Petroleum Transmission to install 12 kilometres of new pipe. The line extends from Richardson, Saskatchewan and interconnects with Cochin's pipeline.

Cyanamid received approval to construct a six-kilometre pipeline from its plant at Welland to the TransCanada pipeline at Black Horse Station, Ontario. The Federal Court of Appeal subsequently ruled that the Board did not have jurisdiction over this pipeline. (Please refer to *Legal Actions* for more information.)

Consumers' Gas (Canada) Limited received approval to purchase a 39-kilometre section of pipeline from TransCanada, extending from Vaughan to Brampton, Ontario.

The Board approved an application from A.P.R. Pipeline to purchase from Polysar two 2-kilometre lines crossing the St. Clair River and to construct a dual 11-kilometre pipeline system from the Petrosar Limited petrochemical refinery in Corunna, Ontario to the St. Clair River.

The Board also approved an application to lease part of an unused line of the Portland/Montreal pipeline system to Shell Canada, to convert it from crude oil to natural gas service and to reverse the direction of flow to carry the natural gas to export markets in the northeastern United States. This project came into service in November 1987.

In addition, the Board approved various other applications dealing with receipt or delivery facilities, pipeline replacements and modifications to existing pipeline facilities.

Routine Inspection

During 1987, routine inspections of the operation, maintenance and safety practices were conducted on 11 of the pipeline companies under the Board's jurisdiction. These inspections are designed to ensure that pipelines are operated and maintained in accordance with existing regulations and standards, thereby providing for the safety of the public.

Concurrently with the 1987 program of routine inspections, Board inspectors conducted workplace occupational safety and health inspections as part of the Board's agreement with Labour Canada. These inspections are designed to help ensure that workers' safety and health are being protected in accordance with existing regulations and standards.

Pipeline Incidents

The Board requires detailed reports of all incidents involving personal injury or fatality, pipeline malfunctions such as leaks, breaks, fires, or explosions, or any other event which results in a loss of service of a pipeline under its jurisdiction. The Board conducts public inquiries, as appropriate, to ascertain the cause of the incident and, when necessary, to establish specific measures to prevent a recurrence of that type of incident. These reports and inquiries are considered when revising pipeline safety and operational standards and regulatory requirements.

When a pipeline is damaged, the Board ensures that steps are taken to contain spills of hydrocarbons, to provide protection to the public and property, and to repair the damaged pipeline and return it to service as quickly as possible. The Board continues its surveillance of the site to ensure the effectiveness of the company's environmental rehabilitation program.

During 1987, the Board conducted various field inspections of pipeline incident locations to monitor the implementation of established emergency, safety and environmental protection procedures.

Table 6 shows the causes of pipeline incidents for the period 1983 to 1987. A total of 38 incidents occurred in 1987. No fatalities or serious injuries were reported during the year.

Table 6
Causes of Pipeline Incidents 1983-1987

	1983	1984	1985	1986	1987
Defective Welds	6	4	5	0	3
Material Failures	2	10	4	5	4
Third Party Damage	4	5	6	3	8
Corrosion	7	6	5	10	8
Miscellaneous	14	9	11	10	15
TOTAL	**33**	**34**	**31**	**28**	**38**

Utility Crossings and Infringements

All utility construction affecting pipelines regulated by the Board requires its approval. Proposed activities must meet standards ensuring safe construction practice.

In addition to random inspections of utility construction in 1987, the Board inspected the installation of over 1 700 kilometres of fibre-optic cable by Bell Canada on TransCanada's right-of-way in Ontario. Board inspections are designed to encourage safe construction practices near pipelines.

In 1987, 744 applications relating to pipeline crossings or right-of-way infringements were approved by the Board.

Environmental Matters

Environmental Protection

The construction and operation of pipelines and power lines can have a variety of adverse effects on the environment. To ensure that companies make every reasonable effort to protect the environment, the Board audits all phases of project planning, development and operation. The Board ensures that the environment is properly protected by evaluating the environmental impact statements submitted as part of project applications for completeness and accuracy in evaluating the environment and in assessing the impact of proposed construction on the environment. In addition, the Board ensures that, where negative effects on the environment cannot be fully mitigated or avoided, companies are prepared to restore and rehabilitate the affected areas. As part of the Board's audit function, companies constructing major projects must submit post-construction environmental monitoring reports documenting the mitigative measures implemented during construction and the recovery of the right-of-way following construction.

In 1987, the Board carried out several environmental inspections. Those included inspections of the 1987 pipe replacement project carried out on Interprovincial's pipeline between Edmonton, Alberta and Regina, Saskatchewan; construction by Westcoast in northeastern British Columbia; and construction by TransCanada, Petroleum Transmission, and A.P.R. Pipeline in Ontario. The Board found that the projects were being constructed in an environmentally acceptable manner, using proper mitigative and restorative techniques. The companies will monitor the rights-of-way next summer, submitting environmental monitoring reports in December 1988, and will be required to implement remedial action if that becomes necessary.

Board inspectors also monitored the rights-of-way of recently completed projects. During the summer of 1987, the Board monitored the rights-of-way of Interprovincial's expansion project, Westcoast's Sikanni pipeline in northeastern British Columbia, and Hydro-Québec's 450-kilovolt NEPOOL power line. In addition, Hydro-Québec's 120-kilovolt Bedford/Vermont power line was monitored

following the second growing season. The annual overflight inspection of the IPL (NW) pipeline in the Northwest Territories and northern Alberta was made during the summer. The recovery of the rights-of-way continues satisfactorily with few environmental impacts resulting from the construction or operation of the projects. Ongoing monitoring and surveillance programs will ensure that the mitigation of any future site-specific concerns are addressed.

The Board carried out routine inspections of operational pipeline facilities to determine the continuing environmental condition of those rights-of-way. The assessment of spill sites and the monitoring of their rehabilitation and restoration, along with the investigation of landowner complaints, form an integral part of the Board's environmental program.

In addition to regulating pipelines and international power lines, the Board also monitors the operation of associated facilities such as gas plants and oil-storage and loading terminals for compliance with environmental requirements. In 1987, the Board continued its involvement with odour emission abatement at Trans Mountain's Westridge Terminal by monitoring the loading of sour crude oil onto tankers. At the Westridge Terminal, the Board observed the test loading of a barge with sour crude oil where a caustic scrubber was used to remove hydrogen sulphide and mercaptans from the oil. The caustic scrubber reduced odour emission levels by 90 percent. The Board also monitored the operations at Trans Mountain's Burnaby Terminal, and the company's plans for odour abatement measures at that facility. Trans Mountain has filed an application for the implementation in 1988 of odour emission abatement measures in conjunction with its 1988 construction program.

Land Matters

Detailed Route Procedures

The Board did not receive any applications in 1987 where the detailed route procedures needed to be implemented; however, the Board exempted several projects from detailed route procedures where new lands were required. In each case the company demonstrated that options had been obtained on all necessary lands.

Landowners' Rights

The procedures for detailed route approval of pipeline facilities were initiated in March 1983. Those procedures focus on the rights of individual landowners affected by the pipeline project as well as adjacent landowners, and provide those owners with an easily accessible forum to present their concerns.

The detailed route procedures incorporate three distinct components: the land acquisition notice, the land acquisition agreement, and the detailed route hearing. The land acquisition notice to the landowner must set out a description of the lands required, details

of the compensation offered and how that compensation was determined, a description of the procedure for route approval, and a description of the procedure for negotiation and arbitration. The land acquisition agreement, among other things, restricts the agreement to the facilities to be installed at that time and allows the option of either a lump sum or periodic payments. Should periodic payments be requested, the landowner would have a right, every five years, to review the amount of compensation payable. The detailed route hearing, if convened, provides affected landowners, adjacent landowners and other interested parties an opportunity to present their concerns at a local public hearing. Parties who participate in these public hearings are able to recover their justifiable costs from the pipeline company.

Continued efforts were made by TQM to clarify all titles on property crossed by its right-of-way. As a result, several right-of-entry applications were granted TQM.

Native Land Claims

North of 60° latitude, the federal government has been negotiating the settlement of comprehensive native land claims. These land claims, which involve areas of proven and potential oil and gas reserves, include the Western Arctic Claim (Mackenzie Delta), the Claim of the Council of Yukon Indians (Yukon Territory), the Dene-Métis Claim (Mackenzie Valley), and the Eastern Arctic Claim (Eastern and High Arctic).

The Board was an observer at the negotiations and was an information source on those issues that may impinge on certain areas of the Board's jurisdiction. The Board's efforts have been directed to maintaining a single agency approval and regulatory process for major pipeline project proposals. Those efforts stem from the Board's belief that its one-window approach to project approvals assists all parties to the proceedings and assists in the implementation of a variety of public policies without placing an undue burden on proponents. Consistent with most governments' views, the Board views the incorporation of its process as an effective means of minimizing regulatory procedures and associated costs.

Financial Regulatory Matters

The Board's mandate in financial regulation is to set just and reasonable tolls for pipelines and to prevent unjust discrimination. To provide more effective regulation, the Board has taken steps to minimize the degree of financial regulation, taking into account public interest considerations. As a consequence, the pipeline companies regulated by the Board have been divided into two groups.

Group 1 consists of the ten major pipeline companies which are audited by the Board on a regular basis and whose operating results are continuously monitored by the Board. The Board actively regulates the tolls and tariffs of seven of these ten companies, usually through the public hearing process. Information on the

current year's toll proceedings is presented in *Hearings and Inquiries.*

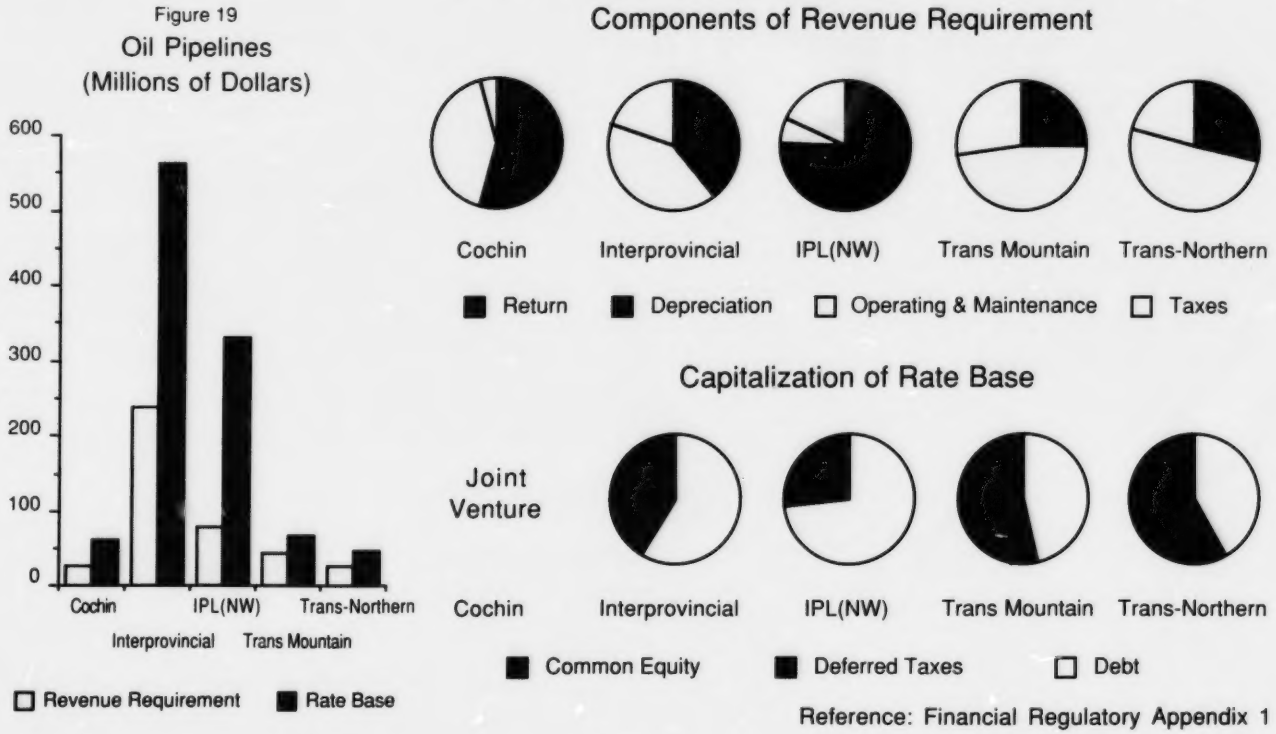
The Board regulates three of the Group 1 companies on a complaint basis. During 1987, the Board began regulating the tolls of Alberta Natural Gas and IPL (NW) on this basis. These two companies, together with Cochin, are the Group 1 pipeline companies currently being regulated in this manner.

The 1987 financial data for the Group 1 pipeline companies are found in Figures 19 and 20. The 1987 approved and actual rates of return on equity for these companies are illustrated in Figure 21.

The pipeline companies under the Board's jurisdiction which are not included in Group 1 have been designated as Group 2 companies. The tolls of the Group 2 companies, of which there are 33, are filed with the Board and normally reviewed only in the case of a complaint. Their operating results are monitored through the review of their annual financial statements.

In 1986 the Board introduced a new basis of cost allocation to set tolls on the TransCanada system in order to reflect changes in gas marketing. Under this approach, an operating demand volume for each distributor is determined by recognizing the volume of firm direct sales which displace the distributor's contracted volumes with TransCanada. In its May 1987 decision on TransCanada's tolls, the Board decided to consider, on a case-by-case basis, requests to include displacement by interruptible direct sales in the determination of the operating demand volume.

Figure 19

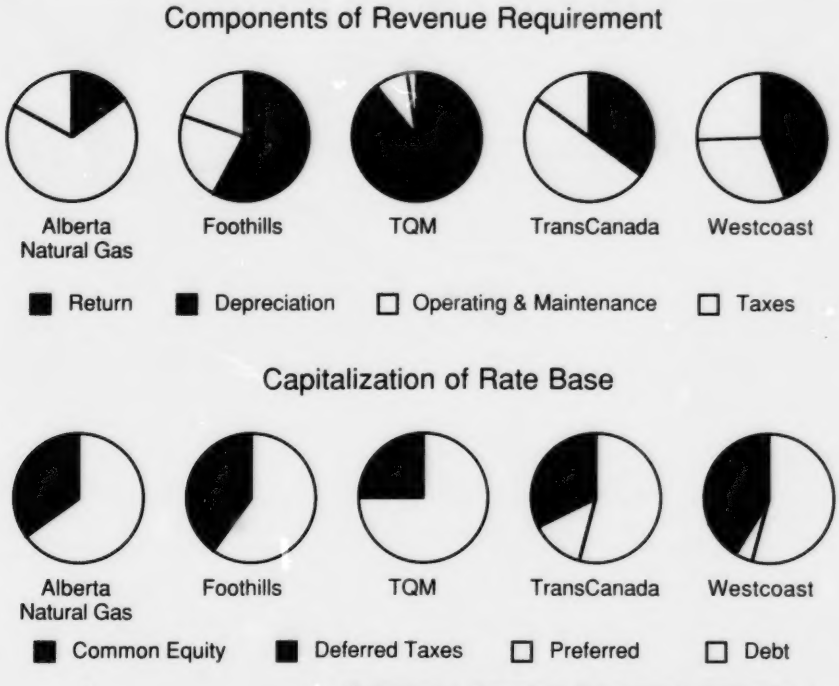


Reference: Financial Regulatory Appendix 1

The Board subsequently considered two such requests, one from Greater Winnipeg Gas Company in respect of interruptible volumes for Inland Cement Limited and one from ICG Utilities (Manitoba) Ltd. in respect of interruptible volumes for Simplot Chemical Company Ltd. The Board approved a reduction in the operating demand volume of ICG Utilities; however, the reduction was smaller than what the company had applied for. The Board denied any reduction in the operating demand volume of Greater Winnipeg.

Before deciding to regulate IPL (NW) on a complaint basis, the Board, in March 1987, examined a provisional toll application filed by the company, and approved a provisional toll for 1987. Trans Mountain's tolls were adjusted in October 1987 to reflect changes in throughput volumes and related costs. The Board also adjusted Interprovincial's tolls in December as a result of an application filed by the company in October.

On the basis of its review of Trans-Northern's 1987 third quarter surveillance report, the Board was concerned that changes in throughput and a number of other factors could cause the company to exceed by a wide margin its allowed rate of return on common equity in 1988. Having decided that a review of the company's forecast operating results was in order, the Board directed the company to file certain throughput and financial information for 1988. The Board also decided that the company's existing tolls would be interim until such time as the Board had completed its review of Trans-Northern's submission. Subsequent to the Board's request, Trans-Northern applied to the Board to reduce the company's tolls by 10 percent, on an interim basis, and indicated that it would file an application in February 1988. The Board accepted Trans-Northern's proposal.



Reference: Financial Regulatory Appendix 1

Figure 20
Gas Pipelines
(Millions of Dollars)

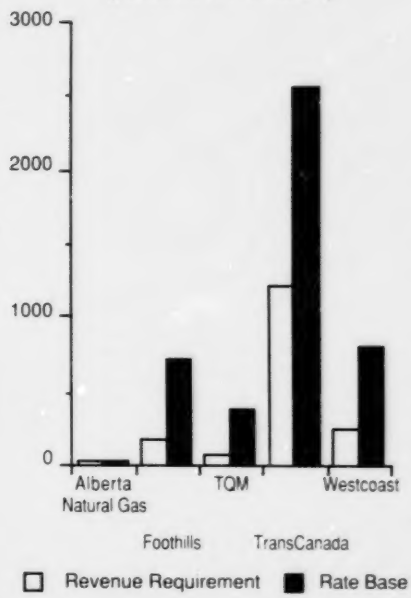
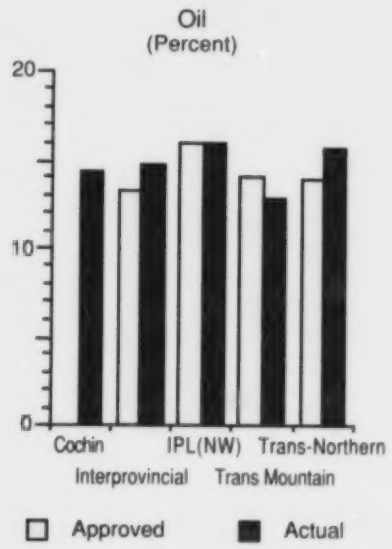
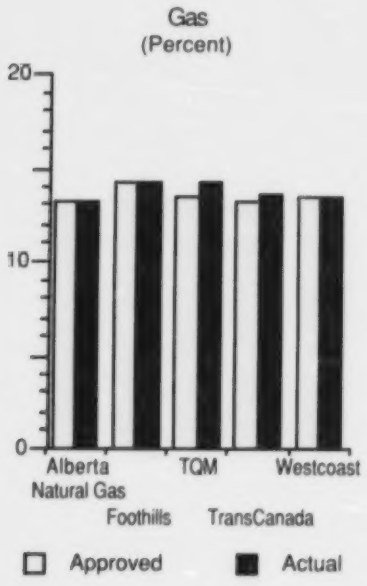


Figure 21

Group 1 Companies
Rate of Return on Common Equity





Reference: Financial Regulatory Appendix 1

Under the provisions of the *Energy Administration Act*, the Board was responsible for the collection of export charges levied on crude oil and bulk petroleum product exports, a program which was effectively terminated in 1985. During 1987 the Board completed auditing these charges. The Board also completed in 1987 its audits related to the Transportation Fuel Compensation Recovery Charge program.

Legal Actions

This section describes the various legal actions in which the Board has been involved during 1987. The facts that gave rise to these actions can be found in *Hearings and Inquiries*.

Dome/Cochin and Minister of Energy for Ontario

In March 1986, Dome Petroleum Limited and the Minister of Energy for Ontario applied to the Federal Court of Appeal for leave to appeal the Board's February 1986 decision in which the Board decided that it had jurisdiction over certain ethane storage caverns located in Windsor, Ontario. Those caverns are used to store product shipped on Cochin's pipeline. Dome also applied to have the Court review and set aside the decision.

The Federal Court of Appeal granted leave to appeal and heard both actions on 12 January 1987. On 17 February 1987, the Court issued its decision, dismissing the applications.

Corporation of the Township of Flamborough and the Regional Municipality of Hamilton-Wentworth

In February 1986, the Township of Flamborough and the Regional Municipality of Hamilton-Wentworth applied to the Federal Court of Appeal for leave to appeal the Board's December 1985 decision on the location of Interprovincial's propane terminal facilities in the Flamborough, Ontario area.

On 2 April 1986 the Court granted leave to appeal on two grounds, both of which related to the terms and conditions in the Board order which authorized construction.

The appeal was heard in Toronto on 4 May 1987. The Court rendered its decision on 7 May 1987 and allowed the appeal. Paragraphs 12 to 15 of the Board's order, which contained the conditions to be met by Interprovincial before the Board would grant leave to open the facilities after construction, were set aside and referred back to the Board for reconsideration.

On 1 October 1987, Interprovincial advised the Board that it did not wish to proceed with the project. On 29 October 1987 the Board revoked the order authorizing the facilities.

Union Gas Limited et al.

In February 1987, Union Gas and The Consumers' Gas Company Ltd. applied to the Federal Court of Appeal to review and set aside the Board's December 1986 decision authorizing the construction by Cyanamid of a short bypass pipeline in southern Ontario. In addition, both companies, together with ICG Utilities (Ontario) Ltd. and the Minister of Energy for Ontario, applied to the Federal Court of Appeal for leave to appeal the Board's decision.

On 16 March 1987, in response to applications to the Board by Consumers' and the Minister of Energy for Ontario, the Board granted a stay of its December 1986 decision on an interim basis, while it decided whether the stay should be granted on a final basis.

As part of a related proceeding before the Ontario Energy Board (OEB), a reference was made by the OEB to the Divisional Court of the Supreme Court of Ontario to determine whether the authority to regulate "typical" bypass facilities situated in Ontario was within the exclusive jurisdiction of the Province of Ontario and, therefore, properly exercised by the OEB. The Court issued its decision on 26 March 1987 in which it decided that the Province of Ontario and, thereby the OEB, had exclusive jurisdiction over such facilities. Following that decision, the applications before the Federal Court of Appeal and before the Board were withdrawn.

On 30 April 1987, the Lieutenant Governor of Ontario referred the question of jurisdiction over typical bypass facilities to the Court of Appeal of Ontario. That reference was heard on 4 October 1987 and the Court reserved its decision.

Cyanamid Canada Pipeline Inc.

In a related matter, on 6 April 1987, Cyanamid applied to the Board for a review of the Board's December 1986 decision that it had jurisdiction over a short bypass pipeline to be constructed by Cyanamid from its plant at Welland, Ontario, to the TransCanada pipeline at Blackhorse Station, Ontario. It also requested that the question of the Board's jurisdiction over that bypass pipeline be referred to the Federal Court of Appeal.

The Board referred the jurisdictional question to the Federal Court of Appeal and the Court heard the reference on 4, 5 and 6 November 1987. On 27 November 1987, the Court issued its decision in which it stated that the Board did not have jurisdiction over the proposed Cyanamid pipeline.

Cyanamid has since filed with the Supreme Court of Canada an application for leave to appeal the decision of the Federal Court of Appeal.

Independent Petroleum Association of Canada (IPAC)

On 16 July 1987, IPAC applied to the Federal Court of Appeal for leave to appeal the portion of the Board's May 1987 decision

relating to interruptible tolls to be charged by TransCanada. IPAC also applied to have the Court review and set aside the decision.

On 11 November 1987, IPAC discontinued its application for leave and, then, on 13 November 1987 it discontinued its application to have the decision reviewed and set aside.

Northridge Petroleum Marketing, Inc. and ENRON Canada Ltd.

In late June 1987, Northridge Petroleum Marketing, Inc. and ENRON Canada Ltd. applied to the Federal Court of Appeal for leave to appeal the Board's decision of 26 May 1987 concerning the complaints Northridge and ENRON had raised concerning tolls charged by TransCanada PipeLines Limited. Northridge and ENRON had complained about the tolls charged for gas sold under TransCanada's competitive marketing program agreements.

On 18 August 1987, the Federal Court of Appeal granted leave to appeal. The appeal documentation is being prepared.

Manitoba Oil and Gas Corporation

On 18 November 1987, Manitoba Oil and Gas applied to the Federal Court of Appeal for leave to appeal the Board's decision of September 1987. In that decision, the Board denied Manitoba Oil and Gas' request that TransCanada PipeLines Limited be ordered to transport natural gas for the corporation.

That application is currently before the Court.

Westcoast Transmission Company Limited

On 3 October 1986, Westcoast applied to the Federal Court of Appeal to review and set aside the Board's August 1986 decision on Westcoast's 1986 tolls. Westcoast also applied to the Court for leave to appeal the Board's decision.

On 30 March 1987, Westcoast withdrew its application for leave to appeal and at the same time advised the Board that it intended to discontinue its application to have the decision reviewed and set aside.

Legislation and Regulations

The following section outlines changes that were made during 1987 to the *Act*, *Regulations*, and *Rules* under which the Board operates. The Board's quarterly *Regulatory Agendas* provide additional detail on this subject.

Onshore Pipeline Regulations

The *Onshore Pipeline Regulations* will replace and combine the existing *Oil Pipeline Regulations* and *Gas Pipeline Regulations*. These regulations provide for the safe design, construction and operation of onshore oil and gas pipelines. The Board approved the regulations in February 1986. Since that time, they have been undergoing examination by the Department of Justice. The Board expects to have them published in early 1988.

The *Onshore Pipeline Regulations* may be amended subsequently, depending on the outcome of the Board's review of comments from industry and other interested parties on the recommendations, other than recommendation 5.9, which were included in the Board's report dated June 1986 on an accident in February 1985 on Interprovincial's pipeline system. (Please refer to *Hearings and Inquiries*.)

Offshore Pipeline Regulations

On 20 December 1984, the Board issued for comment the first draft of its new *Offshore Pipeline Regulations*. These regulations provide for the safe design, construction, and operation of offshore pipelines. The CSA preliminary standard, *CSA Z187, Offshore Pipeline Standard*, forms the technical basis for the Board's new *Offshore Pipeline Regulations*.

Interested parties were invited to submit comments on these regulations by 15 April 1985. Following a meeting with industry representatives on 18 April 1985, an industry task force was established to review these regulations. Based on their recommendations, a further draft is being prepared which will be submitted for final comment by the task force and other interested parties.

Rules of Practice and Procedure

The Board issued a revised draft of the *Rules of Practice and Procedure* and schedules on 7 May 1987. Although the revised rules must still be examined by the Department of Justice and published in the *Canada Gazette*, the Board has asked all parties to use them.

Regulations Respecting Crossings of Pipelines

In a letter dated 16 July 1986, the Board announced that it was considering revising its regulations governing the crossing of federally regulated pipelines by third parties. These regulations cover crossings such as roads, railways, drainage systems, telephone and power lines, and other pipelines.

During 1987, the Board issued for comment three successive drafts of its regulations and invited pipeline companies and major utilities to submit their views.

To address some concerns of the Department of Justice, the regulations were divided into two sets of regulations, as follows:

Part I of the regulations will set out the circumstances and conditions under which a third party would not require leave of the Board before excavating on a pipeline right-of-way or constructing a highway, railway, ditch, utility, etc., across a pipeline or its right-of-way. As a condition for not requiring leave, the excavator or constructor must fulfill a predetermined set of responsibilities.

Part I has been approved in principle by the Board, but is subject to examination by the Department of Justice before implementation.

Part II of the regulations will define the responsibilities of the pipeline company necessary to ensure safety during the construction of the crossing.

Part II has been approved by the Board and is subject to examination by the Department of Justice and approval by the Governor in Council.

International Power Line Crossing Regulations

Following receipt of comments from interested parties on the draft *International Power Line Crossing Regulations*, the Board approved a new draft in January 1987.

On advice from the Department of Justice, the regulations were divided into two sets of regulations, as follows:

International Power Line Crossings, Construction and Abandonment Regulations

These regulations deal with crossings by international power lines as well as the company's responsibilities to maintain crossing records, abandon crossings, and report incidents. The regulations are subject to examination by the Department of Justice and approval by the Governor in Council.

International Power Line Crossings Regulations

These regulations deal with crossings of international power lines and set out the terms and conditions under which leave of the Board to cross such power lines need not be obtained. The regulations have been approved in principle by the Board and are subject to examination by the Department of Justice prior to implementation.

National Energy Board Part VI Regulations

On 26 June 1986, the Board issued for comment a proposed amendment to the *Part VI Regulations* that would increase the limits of new firm export orders for electricity from 50 to 60 megawatts and from 250 to 400 gigawatt hours. For new interruptible energy and equichange, storage, adjustment and carrier transfer exports, the limit would be increased to 1 000 gigawatt hours. The term of these export orders would be three years. Respondents supported the proposed amendment.

The amendment received Governor in Council approval on 20 August 1987.

Oil Product Designation Regulations

Trans Mountain Pipe Line Company Ltd., Neste Oy (Finland's national oil company), Celanese Canada Inc. and Hoechst Celanese Corporation are considering constructing a facility in Edmonton, Alberta to produce methyl tertiary butyl ether (MTBE), provided this product can be transported to the west coast by pipeline, thereby giving access to markets in California and elsewhere. MTBE is an octane enhancer used as a replacement for tetra ethyl lead in gasoline. Methanol currently being produced in Alberta would also gain access to new markets if it could be transported to the west coast by pipeline.

New regulations drafted by the Board designate MTBE and methanol as oil products pursuant to section 89 of the *National Energy Board Act*. This designation permits the transport of the products by pipeline. (The regulations also exempt the products from the import and export licensing requirements of Part VI and VI.1 of the *Act*.) Without these enabling regulations, Trans Mountain would not be able to transport methanol and MTBE from Edmonton to the west coast.

These regulations have been approved by the Department of Justice and have been forwarded to the Minister for Governor in Council approval.

Amendments to the National Energy Board Act

National Transportation Act

In the *National Transportation Act, 1987*, amendments were made to the *National Energy Board Act* giving the Board jurisdiction over combined pipelines and the power to regulate tolls and tariffs in respect of such pipelines. A combined pipeline is a pipeline which is used for the transmission of oil or gas with any other commodity. These amendments to the *National Energy Board Act* are effective 1 January 1988.

Functions and Responsibilities

Responsibilities Under the National Energy Board Act

The Board has two principal responsibilities under the *National Energy Board Act:*

- to regulate specific matters concerning oil, gas and electricity in the public interest, and
- to advise the government on the development and use of energy resources.

The Board has the authority to hold inquiries into any aspect of energy matters under its jurisdiction and to issue reports for the use and information of government, Parliament, and the general public.

The regulatory roles of the Board are described below.

Export Licences and Orders

The Board issues long-term licences for the export of oil, gas, and electricity. Such licences are normally granted following public hearings. In issuing export licences, the Board must satisfy itself that, among other things, the quantities of energy exported do not exceed the surplus remaining after making allowance for reasonably foreseeable Canadian requirements. The Board also issues orders for short-term exports of energy commodities subject to the restrictions imposed in the *National Energy Board Part VI Regulations.* In addition, the Board authorizes licences and orders for imports of natural gas.

Regulation of Pipeline Traffic, Tolls, Tariffs, and Accounting Practices

The Board regulates the traffic, tolls and tariffs of pipeline companies under federal jurisdiction to ensure that the tolls are just and reasonable and that there is no unjust discrimination in tariffs or service.

Certificates of Public Convenience and Necessity for Pipelines and Power Lines

The Board grants certificates to construct and operate interprovincial and international oil, gas, and petroleum products pipelines, as well as international and designated interprovincial electric power lines. Before a certificate is issued, the Board is required to hold a public hearing.

Detailed Routing - Pipelines and Power Lines

Persons whose lands may be affected by the route of a pipeline or power line approved by the Board can present their views to the Board at a local public hearing. Their evidence is considered in the determination of the final detailed route of the line.

Pipeline and Power Line Orders

The Board approves without a public hearing minor pipeline facilities or minor additions to, or modifications of, existing pipeline systems. These approvals are restricted to pipelines not more than 40 kilometres long and to installations such as tanks, pumps, compressors, and meter stations. The Board may also authorize, without a public hearing, the construction and operation of international power lines not exceeding 50 kilovolts.

Pipeline Safety

The Board's *Oil and Gas Pipeline Regulations* provide for the safe design, construction, and operation of pipelines under the Board's jurisdiction. To ensure high standards of pipeline construction and operation, the Board carries out inspection programs and conducts investigations of pipeline system performance.

Pipeline Utility Crossing Orders

To enhance public safety, the Board grants prior approval to utilities crossing a pipeline, thereby ensuring design compatibility and reducing the possibility of damage to the pipeline. It also establishes the conditions under which a pipeline may be constructed across an existing utility, thereby ensuring the integrity of other utility services. Construction of a pipeline crossing navigable water or a railway requires permission of the Minister of Transport or the National Transportation Agency. (New regulations will change the way in which the Board administers its responsibilities for crossings. Please refer to *Legislation and Regulations.)*

Environmental Protection

The Board considers the environmental implications of any proposal to build and operate an oil or gas pipeline or international power line. Companies preparing an application to the Board are encouraged to anticipate and discuss with all levels of government, public interest groups, and affected landowners the environmental issues and concerns that the proposed project could create. Such early planning with respect to environmental matters produces a more complete application addressing the appropriate alternatives and taking into account the public's concerns.

To ensure the highest level of environmental protection, the Board welcomes interventions at hearings from local environmental and public interest groups, as well as concerned individuals. To encourage public participation, the Board often convenes the hearing in the area where construction impacts would occur.

After the issuance of a certificate or order, the Board audits the company's construction activities, and later, during the operation of the system, its routine maintenance and monitoring procedures. In that way, the Board can be satisfied that the company is continuing to protect the environment, and to ensure public health and safety.

Socio-Economic Impact

As part of its facilities approval process the Board considers local and regional social and economic concerns. The Board ensures that applicants take all reasonable steps to minimize project-induced negative impacts and to enhance project benefits accruing to local and regionally affected social groups. This can include a pre-project socio-economic impact assessment, a review of proposed socio-economic action plans, post-certification monitoring of the success or failure of the action plans, and an assessment of actual project impacts.

Responsibilities Under the Energy Administration Act

For many years, the Board had important responsibilities in administering Parts I and I.1 of the *Energy Administration Act*.

Parts I and I.1 pertained, respectively, to the collection of charges on oil exports and the collection of the Transportation Fuel Compensation Recovery Charge. Although the export charge program ended, in effect, in 1985, and the TFCR Charge program in 1983, some activity remained in the area of auditing and some refunds are still to be made.

Responsibilities Under the Northern Pipeline Act

The Board's statutory responsibilities regarding the Canadian portion of the Alaska Natural Gas Transportation System relate mainly to the regulation of tolls and tariffs, the approval of pipe specifications, the granting of leave to open orders, and the regulation of the operation of the line. However, the Board's activities under the *Northern Pipeline Act* will be negligible until the main project proceeds.

Labour Canada Agreement

A memorandum of understanding has been entered into by the Board and Labour Canada, whereby certain Board inspectors have been appointed safety officers by the Minister of Labour and have assumed operational responsibilities for matters of occupational safety and health as covered in Part IV of the *Canada Labour Code*. The agreement, which became effective on 23 February 1987, includes all pipelines under the Board's jurisdiction but excludes certain areas such as head offices and regional offices of the pipeline companies; these will continue to be the responsibility of Labour Canada.

Public Access and Participation

The Board is a court of record. With specific exceptions relating to the confidentiality of certain competitive pricing information, the Board's deliberations are conducted on the basis of publicly filed, publicly available information. For major applications and inquiries, the Board holds public hearings at which applicants and interested persons have full rights of participation in the official language of their choice. To give parties an opportunity to discuss their concerns or questions, the Board provides advance notice of its hearings and allows time for parties to respond to requests for information.

In addition, the Board issues quarterly regulatory agendas on matters coming before the Board as well as information bulletins and press releases on a variety of matters pertaining to Board activities.

Implementation of Board Decisions

When the Board is prepared to grant a certificate for a pipeline or a power line or to issue a licence for the export of natural gas or electricity, the import of natural gas, or the long-term export of oil, it so reports to the Governor in Council through the Minister of Energy, Mines and Resources. If a certificate is approved by the Governor in Council, the certificate is then issued by the Board. In the case of long-term export or import applications, licences issued by the Board go into effect on approval by the Governor in Council. A decision of the Board to refuse an application is not subject to referral to the Governor in Council. The Board's Reasons for Decision on applications are issued as public documents. The Board's decisions on tolls and tariffs are made without reference to the Governor in Council, as are the majority of the Board's day-to-day decisions.

Reviews and Appeals of Board Decisions

The Board may review, rescind, or change any of its orders or decisions, or rehear any application before deciding on it. It may also change a previously issued certificate or licence, but no such change is effective until approved by the Governor in Council.

Parties may apply to the Board requesting that a decision be reviewed. A decision may be appealed to the Federal Court of Appeal, with leave of that Court, provided the appeal is based on a point of law or jurisdiction.

Awarding of Costs

Except in detailed route hearings, the Board does not have the power to award costs to participants in its proceedings.

In the case of detailed route hearings, the Board may establish the appropriate level of compensation to be paid to a landowner for costs associated with participation in the hearing.

Organization

Members of the National Energy Board

The membership of the Board as of 31 December 1987 was:

Roland Priddle	Chairman
Jean-Guy Fredette	Vice-Chairman
Livia M. Thur	Associate Vice-Chairman
A. Digby Hunt	Associate Vice-Chairman
Jacques Farmer	Member
John R. Jenkins	Member
R. Byron Horner, Q.C.	Member
William G. Stewart	Member
A. Boyd Gilmour	Member
Claude Senneville	Temporary Member

Jean-Guy Fredette assumed the duties of Vice-Chairman on 29 November 1987. Ralph F. Brooks' term as Member and Vice-Chairman expired on 28 November 1987.

John R. Jenkins, who was first appointed to the Board in 1980 was reappointed effective 13 November 1987 for a one-year period.

Claude Senneville was appointed a temporary Board Member on 24 February 1987 and was named a member of the panel that conducted the hearing into Hydro-Québec's application to export power to New England Utilities.[1]

Standing Panels

The Board assigns much of its non-hearing regulatory work to five standing panels, each composed of a quorum of three Board Members.

The standing panels refer to the Board as a whole any matters involving Board policy, regulatory principles, or jurisdiction, or that warrant a public hearing. Except as noted below, panels do not issue or amend certificates or licences, or decide matters requiring a public hearing.

Members of the Board's standing panels as of year-end, and their responsibilities, are given below. The composition of standing panels is changed at appropriate intervals to provide members with an opportunity to become familiar with all aspects of the Board's work. The first-named member of each panel is the Panel Chairman, the fourth is the Alternate Member. The Board's Chairman is an ex-officio member of all panels.

1. Mr. Senneville's term expired 23 February 1988.

Oil Panel

R.B. Horner
J.R. Jenkins
J. Farmer
W.G. Stewart

Issues export orders for crude oil and petroleum products, regulates matters of traffic on oil pipelines; advises the Minister respecting oil-related energy matters in general; monitors and reports on oil exports as required by the *Western Accord* (the March 1985 Agreement between Canada, Alberta, British Columbia and Saskatchewan on oil and gas pricing and taxation).

Gas Panel

A.D. Hunt
R.B. Horner
A.B. Gilmour
R. Priddle

Exercises the powers of the Board on matters relating to natural gas, propane, butanes, and ethane, and on matters of traffic in gas pipeline services; approves gas export contract amendments and, subject to Governor in Council approval, issues concordant amendments to gas export licences; issues short-term gas orders; advises the Minister on all matters relating to gas export markets.

Electrical Panel

L.M. Thur
J.R. Jenkins
W.G. Stewart
A.B. Gilmour

Exercises the Board's powers on all matters relating to electricity; issues electrical exemption and export orders; advises the Minister on electricity matters.

Pipeline Panel

J.R. Jenkins
R.B. Horner
A.B. Gilmour
J. Farmer

Exercises the powers of the Board in matters relating to the construction, operation, and maintenance of pipelines, including safety and environmental considerations.

Financial Regulatory Panel

W.G. Stewart
L.M. Thur
J. Farmer
J.R. Jenkins

Exercises the powers of the Board with respect to tariffs and tolls charged by pipeline companies under the Board's jurisdiction.

1988 Standing Panels

Effective 4 January 1988, the Oil, Gas and Electrical Panels will be combined into a new Energy Commodities Panel, composed of five members. The composition of the three standing panels as of that date follows. The first-named member of each panel is the Panel Chairman. The Board's Chairman is an ex-officio member of all panels.

Energy Commodities Panel	*Pipeline Panel*	*Financial Regulatory Panel*
R.B. Horner	*A.B. Gilmour*	*J.-G. Fredette*
J.-G. Fredette	*J.R. Jenkins*	*W.G. Stewart*
L.M. Thur	*R.B. Horner*	*A.B. Gilmour*
A.D. Hunt	*J. Farmer (Alternate)*	*J. Farmer (Alternate)*
W.G. Stewart		

Staff

For the fiscal year 1987-88 the Board's budget was $26.8 million with a person-year allocation of 433.

The Board undertook a voluntary workforce adjustment in 1987-88 from 433 to 358 person-years. This adjustment was carried out following analysis of staff required in the light of changes to the Board's regulatory mandate and in energy industry activity levels. As a result, 75 employees were declared surplus. As of year-end 64 of these employees have retired, found outside employment, or been re-deployed elsewhere in the Board, or other federal departments or agencies.

The Board's offices and branches are described below; the inside back cover of this report lists the Board's senior staff.

The Executive Director is the Board's chief operating officer with responsibilities that include the overall management of the Board, the acquisition and allocation of human and financial resources, and the efficiency and effectiveness of Board activities and operations.

The Finance Branch co-ordinates and administers the financial policies under which the Board operates and provides advice and services relating to financial activities.

The Personnel Branch provides advice and services in the areas of staffing, human resources planning, training, affirmative action, health and safety, security, official languages, classification, staff relations, and pay and benefits.

The Plans and Evaluations Branch is responsible for strengthening the effectiveness of staff support, the co-ordination and administration of policies, and the provision of advice and services in areas of finance and general administration, and security.

The Director General, Energy Regulation is responsible for the integration of all staff activities involving the regulation of energy exports. This encompasses planning and co-ordinating all work affecting the regulation of exports of oil, gas, and electricity under Part VI of the *National Energy Board Act*, and co-ordinating the analysis of all matters related to energy demand, supply and surplus under Part II of the *Act*.

The Economics Branch advises the Board on economic and socio-economic matters and maintains an energy statistics unit. The Branch prepares projections of energy demand in Canada and maintains surveillance of similar studies done for the United States. The Branch's responsibilities include analysis of the impact of proposed energy projects on the economy and socio-economic conditions of Canada and its regions. It also assesses the extent to which Canadians will have an opportunity to participate in projects.

The Energy Supply Branch is responsible for advising the Board on matters relating to oil and gas exploration, drilling, and production and forecasts trends in oil and gas supply from conventional, oil sands, synthetic, and frontier sources. The Branch independently calculates the reserves and deliverability of gas and the reserves and producibility of oil. The calculation of gas and oil reserves by pool is carried out in the Board's Calgary office.

The Electric Power Branch advises the Board on matters relating to electricity export licensing, international power line certification, detailed route approval and export monitoring. The Branch prepares supply and demand forecasts for electricity that are used in dealing with electrical and other applications, reviews the American market for electricity, and provides advice to the Board on matters under federal jurisdiction that relate to the production, transportation, sale, and exchange of electricity.

The Gas Branch advises the Board on matters related to natural gas and gas products, including the regulation of all matters relating to traffic in gas pipeline services and the export of gas and gas products by orders and licences. The Branch maintains a statistics unit which is responsible for the collection and dissemination of operational data related to the consumption and transportation of gas and gas products. As well, the Branch is responsible for preparing short-term forecasts for domestic and export gas and gas products demand. In addition, it plays a supportive role in all other regulatory activity related to gas and gas products.

The Oil Branch provides advice on oil-related energy matters, including oil markets, transmission, processing, distribution, and the short-term balance of supply and demand for feedstocks and oil products. The Branch advises the Board on oil pipeline traffic matters and reviews the export prices of domestic crude oil and petroleum products and international oil prices.

The Director General, Pipeline Regulation integrates all staff activities relating to the regulation of gas, oil, and petroleum products pipelines. This encompasses design, construction, operation, safety, and environmental concerns specified under Part III of the *National Energy Board Act* and matters regarding tolls and tariffs under Part IV of the *Act*.

The Environment and Right-of-Way Branch is responsible for providing advice to the Board with respect to the protection of the environment and the acquisition of land for pipelines and international power lines. The Branch assesses submissions from affected landowners regarding the detailed route of those lines, verifies the accuracy of right-of-way acquisitions, and evaluates the technical requirements related to the safety of third-party crossings of pipelines.

The Pipeline Engineering and Operations Branch advises the Board on matters relating to pipeline certificates issued under the *National Energy Board Act* and for the regulation of the safety of pipeline facilities under the Board's jurisdiction. The Branch is the

Board's principal source of advice on engineering matters included in applications by pipeline companies for facilities construction and tolls, and has responsibilities for administering certain aspects of Part IV of the *Canada Labour Code*.

The Financial Regulatory Branch has the primary responsibility for advising the Board on all matters concerning tolls and tariffs charged by the oil and gas pipelines. As such, it takes a leading role in dealing with all toll applications that come before the Board by providing financial analysis and co-ordinating staff support. It also monitors and audits the financial performance of pipelines under the Board's jurisdiction and conducts financial analysis on applications to the Board for the construction of pipeline facilities. In addition to being the Board's principal source of financial advice, it also conducts audits of petroleum export charges, gas export licences, and transportation costs under specific sections of the *National Energy Board Act* and the *Energy Administration Act*.

The Law Branch provides legal advice to the Board on all matters relating to the Board's powers and responsibilities, acts as Counsel for the Board at public hearings, and represents the Board in proceedings before the Federal and Supreme Courts of Canada.

The Office of the Secretary receives all applications and submissions and co-ordinates their consideration by the Board. It advises the Board on the scheduling of hearings, and makes all administrative arrangements for public hearings in Ottawa and across Canada.

In addition, it provides media and public relations services, publications services, property and materiel management, records management services, and operates the Board's library. It administers the *Access to Information and Privacy Acts* and co-ordinates translation services with the in-house translation unit provided by Secretary of State.

The Information Technology Branch is responsible for computer systems services, word processing support, and data processing support. This includes consultative services on computer operations, data management, program design and development, and advisory services on the latest data processing techniques and applications. Branch responsibilities also include the integration of information and processing systems and services for the Board.

Reasons for Decision Issued in 1987

1. CYANAMID CANADA PIPELINE INC. - In the matter of an application under section 49 and subsection 59(3) of the *National Energy Board Act.* (Hearing Order GH-3-86) - December 1986

2 PROGAS LIMITED - In the matter of ProGas Limited - Application for a licence to export natural gas (Hearing Order GH-5-86) - February 1987

3. ALBERTA NORTHEAST GAS EXPORT PROJECT - In the matter of applications by Alberta Northeast Gas, Limited, TransCanada PipeLines Limited, ProGas Limited, ATCOR Ltd and AEC Oil and Gas Company - Applications pursuant to sections 17 and 82 of the *National Energy Board Act* for natural gas export licences (Hearing Order GH-1-87) - March 1987

4. SUN PIPE LINE COMPANY LIMITED - Report in the matter of a public inquiry into an accident on the pipeline system of Sun Pipe Line Company near the St. Clair River Crossing in October 1986 near Sarnia, Ontario - (Hearing Order MH-2-86) - March 1987

5. WESTCOAST TRANSMISSION COMPANY LIMITED - Application dated 12 February 1987 with respect to the Export Interruptible Sales Toll - (Hearing Order RH-1-87) - April 1987

6. TRANSCANADA PIPELINES LIMITED - Application dated 14 July 1986 for new tolls effective 1 January 1987 - (Hearing Order RH-3-86) - May 1987

7. HYDRO-QUÉBEC - In the matter of an application under the *National Energy Board Act* of Hydro-Québec for exports to the New England Utilities - (Hearing Order EH-1-87) - May 1987

8. INQUIRY INTO THE REGULATION OF ELECTRICITY EXPORTS - Report of an inquiry by a panel of the National Energy Board following a hearing in November and December 1986 - (Hearing Order EHR-1-86) - June 1987

9. INTERPROVINCIAL PIPE LINE LIMITED - Application dated 5 September 1986 for new tolls effective 1 January 1987 - (Hearing Order RH-4-86) - June 1987

10. INTERPROVINCIAL PIPE LINE LIMITED - Addendum - Application dated 5 September 1986 for new tolls effective 1 January 1987 - (Hearing Order RH-4-86) - June 1987

11. TRANS-NORTHERN PIPELINES INC. - Application dated 11 March 1987 for new tolls effective 1 February 1987 (Hearing Order RH-3-87) - July 1987

12. NATURAL GAS SURPLUS DETERMINATION REVIEW - In the matter of a review of natural gas surplus determination procedures - (Hearing Order GHR-1-87) - July 1987

13. THE MANITOBA HYDRO-ELECTRIC BOARD - In the matter of the application under the *National Energy Board Act* of The Manitoba Hydro-Electric Board - (Hearing Order EH-2-87) - August 1987

14. THE MANITOBA OIL AND GAS CORPORATION - Application dated 25 May 1987, as amended, for orders directing TransCanada PipeLines Limited to receive, transport and deliver natural gas and fixing tolls (Hearing Order MH-1-87) - September 1987

15. CHAMPLAIN PIPELINE PROJECT - Notice of Motion for orders to postpone a portion of the GH-2-87 hearing of an application by TransCanada PipeLines Limited (Hearing Order GH-2-87) - October 1987

16. WESTCOAST TRANSMISSION COMPANY LIMITED - Application dated 19 December 1986 for new tolls effective 1 January 1987 and 1 January 1988 (Hearing Order RH-2-87) - November 1987

17. TRANS QUÉBEC & MARITIMES PIPELINE INC. - Application dated 6 April 1987, as amended, for new tolls effective 1 January 1987 - (Hearing Order RH-4-87) - November 1987

Other Documents Issued in 1987

1. 1986 National Energy Board Annual Report - April 1987

2. Export of Petroleum Products in 1986 - April 1987

3. Exports of Crude Oil in 1986 - April 1987

4. Rules of Practice and Procedure - Revised Draft - April 1987

5. Canadian Electric Utilities - Analysis of Generation and Trends 1985

6. Improving Public Hearings - Letter dated 30 June 1987, supplemented by letter dated 16 December 1987.

7. Glossary of French-English Terminology Used at the National Energy Board - Office Consolidation - August 1987

8. Ontario Oil Supply Logistics 1986-2005 - Staff Report - September 1987

9. Crude Oil and Equivalent Supply-Demand, Medium Term Outlook 1987-1990

10. Breakdown of Regulatory Documents - November 1987

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Energy Overview

1. Canadian Energy Consumption[a] (Petajoules)

	1983	1984	1985	1986	1987[e]
Petroleum[b]	3160.1	3160.7	3135.2	3132.6	3212.0
Natural Gas[c]	1836.3	1983.9	2121.0	2079.6	2098.5
Hydro Electricity[d]	948.2	1021.7	1084.6	1100.9	1130.6
Nuclear Electricity[d]	591.8	632.0	714.2	875.3	884.6
Coal	1048.0	1167.4	1122.1	1140.0	1157.3
Renewable	487.1	475.6	516.7	542.7	540.2
TOTAL FOR CANADA	8071.7	8441.3	8693.8	8871.1	9023.2

a - Includes non-energy use, own use, and conversions and includes fuel for electricity export.
b - Includes LPGs.
c - Excludes reprocessing shrinkage and includes ethane.
d - Hydro and nuclear are converted at 3.6 PJ/TW.h and 12.1 PJ/TW.h respectively.

If the energy were converted using the heat content of 10.5 petajoules per terawatt hour, this assumes that the amount of primary energy associated with hydro and nuclear electricity is the amount which would be required if fossil fuels were used. The amount would be:

	1983	1984	1985	1986	1987[e]
Hydro and Nuclear Electricity	3279.2	3528.4	3783.2	3970.5	4065.2

e- Estimate.
f- Includes energy used to produce steam.

Energy Overview

2. Crude Oil and Equivalent Supply and Disposition (Thousands of Cubic Metres per Day)

	1983	1984	1985	1986	1987
Supply					
Canadian Production[a]	230.2	243.5	248.8	249.0	259.8
Imports[b]	34.9	33.2	43.4	56.6	64.7
Total Supply[d]	265.1	276.7	292.2	305.6	323.9
Disposition					
Domestic[b]	224.1	227.7	221.1	216.7	226.5
Exports[c]	42.8	49.8	75.8	93.6	99.6
Total Disposition[d]	266.9	277.7	296.9	310.3	326.1

e - Estimate

Sources:
a- Source: NEB.
b- Source: NEB Form 153 - Refinery Receipts.
c- Source: NEB Form 306 - Crude Oil Exports.
d- Total Supply does not equal total disposition due to inventory changes, etc.

Energy Overview

3. Natural Gas Supply and Disposition (Billion Cubic Metres at 101.325 KPa and 15 Celsius)

	1983	1984	1985	1986	1987[e]
Net Sales in Canada	43.8	47.6	50.1	48.1	45.5
Other Uses in Canada[a]	1.4	2.3	1.0	2.9	4.4
Exports	20.2	21.4	26.2	21.1	28.0
Total Deliveries[b]	65.4	71.3	77.3	72.1	77.9

a- Includes pipeline fuel and losses and other deliveries, less imports and inventory changes.
b- Marketable pipeline gas.
e- Estimate.

Energy Overview

4. Electricity Generation and Disposition (Terawatt Hours)

	1983	1984	1985	1986	1987
Total Generation	395.9	424.9	446.4	457.2	483.0[p]
Imports[a]	.2	.3	.2	.2	.5
Total Supply	396.1	425.2	446.6	457.4	483.7[p]
Domestic Demand	359.2	387.6	405.1	421.1	438.1[p]
Exports[a]	36.9	37.6	41.5	35.3	45.4

a- Excludes exchanges between Canada and the United States.
p- Preliminary.

Oil

1. Certificates Issued During 1987 Approving New Oil Pipeline Facilities Including Pipeline Construction Exceeding 40 Kilometres In Length

No Certificates were issued in 1987

Oil

2. Orders Issued During 1987 Approving New Oil Pipeline Facilities Including Pipeline Construction Not Exceeding 40 Kilometres In Length

Applicant	Order No.	Issued	Facilities	Estimated Cost ($)
Interprovincial Pipe Line Limited	XO-2-87	87-04-09	Various Pipe Replacements, Alberta and Saskatchewan	41 000 000
Petroleum Transmission Company	XO-3-87	87-06-03	12-km Interconnection with the Cochin System, Saskatchewan	1 000 000
Trans-Northern Pipelines Inc.	XO-1-87	87-03-20	Interconnection Facilities at Toronto Airport, Ontario	185 000

Oil

3. Orders Issued During 1987 Approving Modifications and Additions to Existing Oil Pipeline Facilities

Applicant	Order No.	Issued	Facilities	Estimated Cost ($)
Cochin Pipe Lines Ltd.	XOM-10-87	87-06-10	Facilities to Convert Cavern E-3 from Ethane to Propane Storage	30 000
	XOM-11-87	87-06-24	Replacement of Corroded Piping	30 000
	XOM-12-87	87-07-02	Tie-In to Petroleum Transmission System (See XO-3-87)	70 000
	XOM-22-87	87-12-09	Additions and Modifications to Meter Station	22 000
Dome NGL Pipeline Ltd.	XOM-9-87	87-06-10	Tie-In	3 000
Interprovincial Pipe Line Limited	XOM-16-87	87-10-14	Modifications to Pumping Stations, Tankage, Meter Installation, Communications, Buildings and Equipment	73 000 000
	XOM-18-87	87-11-04	Additions to Pump Station, Communications, Furniture and Equipment	22 029 700
	XOM-20-87	87-11-25	System Capacity Additions	19 025 000
Interprovincial Pipe Line (NW) Ltd.	XOM-15-87	87-09-09	Pumping Stations, Communications and Equipment Replacements	648 000
Manito Pipelines Limited	XOM-1-87	87-01-22	Additional Pump Station Piping	22 000
	XOM-8-87	87-05-28	Tank and Line Improvements	524 000
	XOM-17-87	87-10-21	Modifications and Replacements	57 000
Montreal Pipe Line Limited	XOM-2-87	87-02-18	Replacement of Building Roofs, Office Furniture and Equipment	80 900
Petroleum Transmission Company	XOM-4-87	87-02-25	Remotely Operated Valves	93 300
Sun Pipe Line Company	XOM-19-87	87-11-04	Replacement of Interchange Unit Valve	50 000
Trans Mountain Pipe Line Company Ltd.	XOM-3-87	87-02-12	Replacement of Trunk and Feeder Lines	781 000
	XOM-5-87	87-03-11	Two Floating Roof Tanks	9 350 000
	XOM-6-87	87-02-25	Pump Station Construction	671 000
	XOM-21-87	87-12-09	Additions and Modifications to Pump Station and Terminals	14 500 000
Trans-Northern Pipelines Inc.	XOM-7-87	87-04-08	Replacement of Pipelines, Stations, Office Furniture Equipment and Vehicles	1 541 000
	XOM-13-87	87-07-10	Modifications and Additions to Pump Stations	205 000
Wascana Pipe Line Limited	XOM-14-87	87-08-05	Scraper Trap and Piping	26 000

Oil

4.Exports of Petroleum Products – 1987 (Cubic Metres)

Month	Motor Gasoline	Middle Distillate	Aviation Turbine Fuel	Heavy Fuel Oil	Partially Processed Oil	Total[a]
January	165 009	336 294	65 470	140 484	–	707 257
February	93 385	261 203	98 246	68 741	–	521 575
March	168 021	375 116	28 974	52 442	–	624 553
April	220 006	200 158	79 812	49 927	–	549 903
May	130 841	274 208	108 802	137 522	14 812	666 185
June	168 906	278 462	102 975	75 895	–	626 238
July	124 854	280 183	57 173	157 828	–	620 038
August	180 411	375 870	59 545	101 556	17 883	735 265
September	144 849	236 952	74 674	132 586	15 870	604 931
October	252 854	424 202	90 134	172 804	82 487	1 022 481
November	116 561	294 301	29 065	100 562	62 653	603 142
December	205 605	232 565	143 970	196 404	41 027	819 571
Total (m^3)	**1 971 302**	**3 569 515**	**938 840**	**1 386 751**	**234 732**	**8 101 139**
m^3/d	**5 401**	**9 779**	**2 572**	**3 799**	**643**	**22 195**

a– Excludes propane, butane, lubricants, greases, asphalt, petrohemicals etc.

Oil

5. Exports of Canadian Crude and Equivalent - 1986 and 1987 (Cubic Metres)

	1986		1987	
	Total	Daily Average	Total	Daily Average
Amoco Production Company	1 398 999	3 832	2 240 498	6 138
Ashland Oil Inc.	578 000	1 583	1 563 294	4 283
Border Fuel Supply	2 476	6	–	–
Cenex	1 168 332	3 200	1 072 939	2 940
CGS Energy Inc.	23 922	65	–	–
Challenger Petroleum	25 000	68	–	–
Chinese Petroleum Corporation	–	–	113 367	310
Cibro Sales Corporation	–	–	35 587	98
Clark Oil & Refining Corporation	2 111 949	5 786	3 259 617	8 930
Conoco Inc.	1 643 295	4 502	1 735 076	4 754
Crystal Refining	23 429	64	24 523	67
Exxon Company, U.S.A.	822 444	2 252	1 511 229	4 140
Frontier Oil and Refining Co.	–	-	40 482	111
Gotco N.V.	71 706	196	31 980	88
Hill Petroleum Company	365 905	1 002	–	–
Koch Refining Company	8 494 171	23 271	8 602 267	23 568
Laketon Refining Corp.	203 123	556	383 725	1 051
Lyondell Petrochem Company	42 795	117	–	–
Marathon Petroleum Company	367 560	1 007	669 711	1 835
Mitsui and Company(Canada) Ltd.	50 414	138	–	–
Mobil Oil Corporation	3 624 963	9 931	3 776 645	10 347
Montana Refining Company	56 637	155	165 113	452
Murphy Oil U.S.A. Inc.	389 469	1 066	398 346	1 091
NOCO Energy Corporation	252 015	690	290 175	795
Pacific Refining Company	–	–	6 398	18
Permian Corporation	2 664	7	–	–
Pecten Trading Company	–	–	28 819	79
Phibro Energy Inc.	98 817	270	–	–
Shell Oil Company	737 775	2 021	250 510	686
Sohio Supply Company	222 465	609	271 878	745
Sun Refining and Marketing Co.	2 238 270	6 132	1 926 118	5 277
Sun International	97 991	268	–	–
Sun Oil Trading Company	44 010	120	–	–
Texaco Trader International	53 832	147	–	–
Texaco U.S.A.	490 678	1 343	358 930	983
Total Petroleum, Inc.	96 317	263	86 024	236
Transworld Oil Limited	510 349	1 394	76 005	208
Union Oil Company of California	3 845 549	10 536	4 426 249	12 127
United Refining Company	3 037 128	8 320	2 804 570	7 684
UPG Falco	2 148	5	–	–
U.S. Oil & Refining Co.	971 861	2 660	192 911	529
TOTAL	**34 166 458**	**93 582**	**36 342 986**	**99 570**

Oil

6. Exports of Canadian Crude and Equivalent (Cubic metres per day)

	1983	1984	1985	1986	1987
Light Crude Oil and Equivalent:	11 057	13 857	33 416	41 281	44 213
Heavy Crude Oil:	31 775	36 040	41 901	52 301	55 357
Total	**42 832**	**49 897**	**75 317**	**93 582**	**99 570**

Gas

1. Certificates Issued During 1987 Approving New Gas Pipeline Facilities Including Pipeline Construction Exceeding 40 Kilometres in Length

No Certificates were issued in 1987

Gas

2. Orders Issued During 1987 Approving New Gas Pipeline Facilities Including Pipeline Construction Not Exceeding 40 Kilometres in Length

Applicant	Order No.	Issued	Facilities	Estimated Cost ($)
A.P.R. Pipeline Company Limited	XG-5-87	87-07-22	Construction of two 6.9-km, 168.3-mm Outside Diameter Lines and the Operation of two existing 168.3-mm Outside Diameter River Crossing Pipelines, St. Clair River, Ontario	1 500 000
Foothills Pipe Lines (Yukon) Ltd.	XG-11-87	87-11-25	Crane Lake Meter Station, Saskatchewan	639 000
Many Islands Pipe Lines (Canada) Limited	XG-9-87	87-10-14	Nova - SaskPower Tie-In, Alberta and Saskatchewan	4 000
	XG-10-87	87-11-12	Tap-Off and Lateral on Alberta-Unity Transmission Line, Saskatchewan	7 000
TransCanada PipeLines Limited	XG-2-87	87-04-29	New 'B' Plant with two Reciprocating Compressor Packages and 508-mm Outside Diameter, 6.9-km Loop, Quebec	13 680 000
	XG-6-87	87-07-29	Thornton Sales Meter Station, Ontario	423 000
	XG-7-87	87-07-29	L'Acadie Sales Tap, Quebec	50 000
Trans Québec & Maritimes Pipeline Inc.	XG-3-87	87-05-13	Additional Facilities at Saint-Maurice Meter Station, Quebec	285 000
Westcoast Transmission Company	XG-1-87	87-03-25	Monias Booster Station No. 17, British Columbia	4 600 000
	XG-4-87	87-06-30	Expansion of Sikanni Gas Processing Plant, British Columbia	3 220 000
	XG-8-87	87-09-03	Fibreco Metering Facilities at Meter Station No. 43 Taylor, British Columbia	119 000

Gas

3. Orders Issued During 1987 Approving Modifications and Additions to Existing Gas Pipeline Facilities

Applicant	Order No.	Issued	Facilities	Estimated Cost ($)
Alberta Natural Gas Company Ltd.	XGM-5-87	87-03-04	Replacement of Compressor Driver	1 425 000
	XGM-14-87	87-07-10	Sales Tap	10 000
Consumers' Gas (Canada) Limited	XGM-17-87	87-08-12	Gas Take-off Facilities and Shut-off Valves	73 000
	XGM-23-87	87-10-21	Pipeline Tap	500
Foothills Pipe Lines (Yukon) Ltd.	XGM-4-87	87-03-04	Pipe Modifications	543 700
	XGM-20-87	87-09-30	Measurement System	224 400
	XGM-24-87	87-10-28	Remotely Operated Valve	12 100
ICG Transmission Holdings Ltd.	XGM-7-87	87-04-01	Turbine Meter	10 000
	XGM-11-87	87-06-10	Upgrading Station	65 000
	XGM-12-87	87-06-10	Upgrading Station	10 000
TransCanada PipeLines Limited	XGM-1-87	87-01-22	Population Density Pipe Replacements	17 000 000
	XGM-8-87	87-05-13	Supplementary Pipe Replacements	2 361 000
	XGM-15-87	87-07-15	Station Relocation	2 500 000
Trans Québec & Maritimes Pipeline Inc.	XGM-2-87	87-01-14	Transmission and General Plant Additions	174 300
	XGM-10-87	87-06-10	General Plant Additions	135 469
Westcoast Transmission Company Limited	XGM-3-87	87-02-12	Pipe Replacements, Equipment Upgrade, Office Services	44 915 000
	XGM-6-87	87-04-29	Pipe Replacements, Valves, Vent Stacks	3 991 000
	XGM-9-87	87-04-10	Gas Turbine Replacement	8 970 000
	XGM-13-87	87-06-17	Aircraft Hanger, Station and Pipeline Modification	1 246 000
	XGM-16-87	87-08-05	Upgrade and Replacement of Gate Flare, Valves, Pumps, Office Services	854 000
	XGM-18-87	87-09-23	Pipe Replacement Analyzer, Mobile Equipment	310 000
	XGM-19-87	87-09-23	Pipe Replacement and Revetment Construction	165 000
	XGM-21-87	87-10-08	Pipe and Equipment Replacement	23 425 000
	XGM-22-87	87-10-08	Pipe Replacement, Revetment Construction and Mobile Equipment	805 000
	XGM-25-87	87-12-10	Truck Purchase	19 000
	XGM-26-87	87-12-23	Upgrade of Heaters and Meter Station	204 000

Gas

4. Licences and Long-Term Orders to Export Natural Gas as at 31 December 1987

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order From	To	Maximum Volumes Daily (10^3m^3)	Annual (10^6m^3)	Term (10^6m^3)
Alberta and Southern Gas Co. Ltd.	GL-99	Kingsgate, B.C.	86-12-18	87-10-31	31 897.2	9 340.9	77 626.5
			87-11-01	94-10-31	31 897.2	10 580.4	
Alberta Northeast Gas Ltd. and AEC Oil and Gas Company	GL-105	Iroquois, Ont.	88-11-01	2003-10-31	495.7	180.9	2 714.0
Alberta Northeast Gas Ltd. and ATCOR Ltd.	GL-104	Iroquois, Ont.	88-11-01	2003-10-31	991.5	361.9	5 428.0
Alberta Northeast Gas Ltd. and ProGas Limited	GL-103	Iroquois, Ont.	88-11-01	2003-10-31	1 869.6	682.4	10 236.0
Alberta Northeast Gas Ltd. and TransCanada PipeLines Limited	GL-102	Iroquois, Ont.	88-11-01	2003-10-31	6 614.6	2 414.0	42 646.0
		Niagara Falls, Ont.	88-11-01	2003-10-31	1 175.6	429.1	42 646.0
Canadian-Montana Pipe Line Company	GL-17	Aden/Cardston, Alta., Emerson, Man. & Niagara Falls, Ont.	66-11-01	67-10-31	339.9	103.4	4 652.8
			67-11-01	89-10-31	679.9	206.8	
	GL-25	Aden/Cardston, Alta., Emerson, Man. & Niagara Falls, Ont.	68-11-01	69-10-31	339.9	103.4	4 890.8
			69-11-01	91-10-31	679.9	206.8	
			91-11-01	93-10-31	390.9	119.0	
	GL-52	Aden, Alta., Emerson, Man. & Niagara Falls, Ont.	80-01-01	82-12-31	1 416.4	283.3	2 266.4
			83-01-01	83-03-31	1 416.4	70.0	
			83-04-01	83-12-31	1 133.1	213.3	
			84-01-01	87-12-31	1 133.1	283.3	
	GL-72	Aden, Alta.	88-01-01	88-10-31	1 133.1	236.1	1 085.7
			88-11-01	90-10-31	1 133.1	283.3	
			90-11-01	91-10-31	754.6	188.7	
			91-11-01	92-10-31	377.3	94.3	
	GO-3-79	Reagan Field, Alta.	79-05-01	93-12-31	30.0	10.3	105.0
Columbia Gas Development of Canada Ltd.	GL-54	Huntingdon, B.C.	80-01-01	81-10-31	1 110.4	368.3	2 394.0
			81-11-01	81-12-31	1 450.0	70.8	
			82-01-01	84-12-31	1 450.0	423.5	
			85-01-01	85-12-31	832.8	276.2	
			86-01-01	86-12-31	555.2	184.2	
			87-01-01	87-12-31	277.6	92.1	
		Monchy, Sask.	82-11-01	87-10-31	283.3	92.1	2 394.0
Consolidated Natural Gas Limited	GL-44*	Emerson, Man.	72-03-15	92-10-31	4 249.2	1 274.8	18 951.3
	GL-75	Emerson, Man. & Monchy, Sask. combined maximum	87-11-01	89-10-31	3 824.3	1 396.0	2 792.0

Gas

4. (Cont'd) Licences and Long-Term Orders to Export Natural Gas as at 31 December 1987

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order From	To	Maximum Volumes Daily (10^3m^3)	Annual (10^6m^3)	Term (10^6m^3)
Consolidated Natural Gas Limited (Cont'd)		Maximum permitted at Monchy, Sask. as part of combined Emerson/Monchy volumes	87-11-01	89-10-31	1 912.2	698.0	1 396.0
ICG Transmission Holdings Ltd.	GL-28	Sprague, Man.	70-11-01	95-10-31	80.3	9.5	229.0
	GL-29	Fort Frances, Ont.	70-11-01	95-10-31	915.6	218.5	5 462.2
	GL-30[b]	Sprague, Man.	70-11-01	95-10-31	1 321.8	344.0	8 498.1
KannGaz Producers Ltd.	GL-77	Niagara Falls, Ont.	87-11-01	96-10-31	3 540.0	1 292.1	13 567.0
			96-11-01	97-10-31	2 655.0	969.1	
			97-11-01	98-10-31	1 770.0	646.0	
			98-11-01	99-10-31	885.0	323.0	
Niagara Gas Transmission Limited	GL-78	Cornwall, Ont.	87-11-01	90-10-31	1 200.0	275.0	1 099.7
			90-11-01	91-10-31	799.2	183.1	
			91-11-01	92-10-31	399.2	91.6	
Pan-Alberta Gas Ltd.	GL-95	Emerson, Man. & Niagara Falls, Ont. combined maximum	87-11-01	96-10-31	4 332.5	1 581.4	16 604.7
			96-11-01	97-10-31	3 249.4	1 186.0	
			97-11-01	98-10-31	2 166.2	790.7	
			98-11-01	99-10-31	1 083.1	395.4	
		Maximum permitted at Niagara Falls, Ont. as part of combined Emerson/Niagara Falls volumes	87-11-19	96-10-31	1 442.7	526.6	
			96-11-01	97-10-31	1 082.1	394.9	
			97-11-01	98-10-31	721.3	263.3	
			98-11-01	99-10-31	360.7	131.7	
	GL-96	Kingsgate, B.C.	84-12-20	85-10-31	7 478.6	2 155.9	23 763.6
			85-11-01	94-10-31	7 478.6	2 488.3	
			94-11-01	95-10-31	4 980.7	1 657.2	
			95-11-01	96-10-31	2 490.7	828.6	
	GL-97	Monchy, Sask.	84-12-20	85-10-31	24 928.5	7 582.8	75 296.7
			85-11-01	94-10-31	24 928.5	8 294.4	
			94-11-01	95-10-31	16 602.4	5 524.1	
			95-11-01	96-10-31	8 301.2	2 762.0	
ProGas Limited	GL-80	Niagara Falls, Ont.	87-11-01	96-10-31	1 420.0	518.3	5 442.1
			96-11-01	97-10-31	1 065.0	388.7	
			97-11-01	98-10-31	710.0	259.1	
			98-11-01	99-10-31	355.0	129.6	
	GL-81	Emerson, Man.	87-11-01	96-10-31	5 270.0	1 923.5	20 196.7
			96-11-01	97-10-31	3 952.5	1 442.6	
			97-11-01	98-10-31	2 635.0	961.7	
			98-11-01	99-10-31	1 317.5	480.9	

4. (Cont'd) Licences and Long-Term Orders to Export Natural Gas as at 31 December 1987

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order From	To	Maximum Volumes Daily (10^3m^3)	Daily (10^6m^3)	Annual Term (10^6m^3)
ProGas Limited (Cont'd)	GL-98	Emerson, Man. & Monchy, Sask. combined maximum	86-08-13	86-10-31	9 440.9	2 583.2	12 177.8
			86-11-01	87-10-31	7 552.7	2 480.0	
			87-11-01	90-10-31	9 440.9	3 100.0	
			90-11-01	91-10-31	7 552.7	2 480.0	
			91-11-01	92-10-31	5 664.5	1 860.0	
			92-11-01	93-10-31	3 776.4	1 240.0	
			93-11-01	94-10-31	1 888.2	620.0	
		Maximum permitted at Monchy, Sask. as part of combined Emerson/Monchy volumes	86-08-13	86-10-31	6 797.4	2 480.0	10 988.5
			86-11-01	87-10-31	3 776.3	1 240.0	
			87-11-01	90-10-31	4 720.4	1 550.0	
			90-11-01	91-10-31	3 776.3	1 240.0	
			91-11-01	92-10-31	2 832.2	930.0	
			92-11-01	93-10-31	2 125.0	698.0	
			93-11-01	94-10-31	1 888.2	620.0	
	GL-101	Niagara Falls, Ont.	89-05-01	89-10-31	1 420.0	260.6	10 340.0
			89-11-01	92-10-31	1 420.0	517.0	
			92-11-01	2009-10-31	1 420.0	517.0	
Shell Canada Limited	GL-100	Highwater, Que.	87-11-01	99-03-31	1 110.0	300.0	7 100.0
		Niagara Falls, Ont.	87-11-01	99-03-31	1 390.0	400.0	
Sulpetro Limited	GL-82	Niagara Falls, Ont.	84-02-05	84-10-31	2 125.0	340.0	4 653.7
			84-11-01	88-10-31	2 125.0	775.6	
			88-11-01	89-10-31	2 125.0	745.9	
			89-11-01	90-10-31	850.0	310.2	
			90-11-01	91-10-31	425.0	155.1	
Tenneco LNG Inc.	GL-49[c]	St. Stephen, N.B.	c	c	32 295.0	11 820.0	N/S
TransCanada PipeLines Limited	GL-18	Emerson, Man. & Niagara Falls, Ont.	65-11-01	66-10-31	708.2	1 226.6	33 993.4
			66-11-01	89-10-31	4 277.5	1 481.5	
	GL-19	Philipsburg, Que.	65-11-01	82-10-31	600.6	184.1	3 059.4
			82-11-01	83-10-31	634.5	184.1	
			83-11-01	84-10-31	657.2	184.1	
			84-11-01	86-10-31	702.5	184.1	
			86-11-01	87-10-31	793.2	184.1	
			87-11-01	88-10-31	849.8	184.1	
			88-11-01	89-10-31	906.5	184.1	
	GL-20[d]	Emerson, Man.	67-11-01	91-10-31	2 662.8	909.3	21 670.8
	GL-21	Emerson, Man.	68-11-05	91-10-31	N/S	7 019.1	169 967.0
	GL-37	Emerson, Man.	70-11-01	90-10-31	5 546.6	2 030.1	40 601.0
	GL-38	Emerson, Man.	70-11-01	90-10-31	1 416.4	518.4	10 368.0
	GL-39	Emerson, Man.	70-11-01	90-10-31	204.0	74.6	1 493.0

4. (Cont'd) Licences and Long-Term Orders to Export Natural Gas as at 31 December 1987

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order From	To	Maximum Volumes Daily ($10^3 m^3$)	Annual ($10^6 m^3$)	Term ($10^6 m^3$)
TransCanada PipeLines Limited (Cont'd)	GL-42[d]	Emerson, Man.	71-04-15	71-10-31	N/S	232.8	60 316.5
			71-11-01	94-10-31	N/S	2 612.3	
	GL-43	Emerson, Man.	71-11-01	91-10-31	N/S	481.6	9 631.5
	GL-83	Niagara Falls, Ont.	84-11-01	86-10-31	1 133.1	414.0	9 350.2
			86-11-01	94-10-31	2 620.3	959.0	
			94-11-01	95-10-31	1 521.3	556.8	
			95-11-01	96-10-31	774.3	283.4	
	GL-84	Niagara Falls, Ont.	87-11-01	88-10-31	142.0	51.8	2 378.0
			88-11-01	97-10-31	708.0	258.4	
	GL-86	Emerson, Man.	87-11-01	90-10-31	2 832.8	1 034.0	10 886.4
			90-11-01	91-10-31	2 832.8	1 036.8	
			91-11-01	94-10-31	2 832.8	1 034.0	
			94-11-01	95-10-31	2 832.8	1 036.8	
			95-11-01	96-10-31	2 832.8	1 034.0	
			96-11-01	97-10-31	2 188.7	798.9	
			97-11-01	98-10-31	1 416.4	517.0	
			98-11-01	99-10-31	708.2	259.2	
	GL-87	Emerson, Man.	87-11-01	90-10-31	2 832.8	1 034.0	10 886.4
			90-11-01	91-10-31	2 832.8	1 036.8	
			91-11-01	94-10-31	2 832.8	1 034.0	
			94-11-01	95-10-31	2 832.8	1 036.8	
			95-11-01	96-10-31	2 832.8	1 034.0	
			96-11-01	97-10-31	2 188.7	798.9	
			97-11-01	98-10-31	1 416.4	517.0	
			98-11-01	99-10-31	708.2	259.2	
	GL-89	Emerson, Man.	84-11-01	85-10-31	6 317.1	524.1	12 960.8
			85-11-01	86-10-31	6 317.1	1 957.3	
			86-11-01	90-10-31	6 317.1	2 096.3	
			90-11-01	91-10-31	4 207.2	1 396.1	
			91-11-01	92-10-31	2 103.6	698.1	
	GL-90	Niagara Falls, Ont.	87-11-01	88-10-31	1 416.4	518.4	5 443.2
			88-11-01	91-10-31	1 416.4	517.0	
			91-11-01	92-10-31	1 416.4	518.4	
			92-11-01	95-10-31	1 416.4	517.0	
			95-11-01	96-10-31	1 416.4	518.4	
			96-11-01	97-10-31	1 091.3	398.3	
			97-11-01	98-10-31	708.2	258.5	
			98-11-01	99-10-31	354.1	129.2	
Transcontinental Gas Pipe Line Corporation	GL-91[e]	Niagara Falls, Ont.	84-11-01	93-10-31	8 498.4	1 555.2	16 329.6
			93-11-01	94-10-31	6 373.8	1 166.4	
			94-11-01	95-10-31	4 249.2	777.6	
			95-11-01	96-10-31	2 124.6	388.8	
Union Gas Limited	GL-92	Windsor, Ont.	85-11-01	90-10-31	1 100.0	284.0	1 703.7
			90-11-01	91-10-31	732.6	189.1	
			91-11-01	92-10-31	366.3	94.6	

4. (Cont'd) Licences and Long-Term Orders to Export Natural Gas as at 31 December 1987

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order From	To	Maximum Volumes Daily (10^3m^3)	Annual (10^6m^3)	Term (10^6m^3)
Westcoast Transmission Company Limited	GL-41	Huntingdon/ Kingsgate, B.C. & Monchy, Sask. combined maximum	71-11-01	72-10-31	20 773.9	7 223.1	143 495.2
			72-11-01	80-10-31	22 922.9	7 970.3	
			80-11-01	82-10-31	24 622.6	7 970.3	
			82-11-01	83-03-31	24 622.6	3 299.7	
			83-04-01	83-10-31	26 039.0	4 706.2	
			83-11-01	89-10-31	26 039.0	8 067.8	
		Maximum permitted at Kingsgate, B.C. as part of combined Huntingdon/Kingsgate/ Monchy volumes	73-11-01	79-10-31	22 922.9	7 970.3	
			83-04-01	89-10-31	2 832.8	N/S	
		Maximum permitted at Monchy, Sask. as part of combined Huntingdon/ Kingsgate/Monchy volumes	83-04-01	89-10-31	1 416.4	517.0	
	GL-93	Huntingdon, B.C.	89-11-01	92-10-31	8 498.3	3 101.9	13 958.6
			92-11-01	93-10-31	6 373.3	2 326.4	
			93-11-01	94-10-31	4 249.1	1 550.9	
			94-11-01	95-10-31	2 124.6	775.5	
	GL-94	Huntingdon/ Kingsgate, B.C. & Monchy, Sask. combined maximum	89-11-01	90-10-31	13 731.0	4 637.1	9 269.5
			90-11-01	91-10-31	9 144.8	3 088.3	
			91-11-01	92-10-31	4 572.4	1 544.1	
		Maximum permitted at Kinsgate, B.C. as part of combined Huntingdon/ Kingsgate/Monchy volumes	89-11-01	90-10-31	2 832.8	N/S	
			90-11-01	91-10-31	2 832.8	N/S	
			91-11-01	92-10-31	2 832.8	N/S	
		Maximum permitted at Monchy, Sask. as part of combined Huntingdon/ Kingsgate/Monchy volumes	89-11-01	90-10-31	1 416.4	517.0	
			90-11-01	91-10-31	1 416.4	517.0	
			91-11-01	92-10-31	1 416.4	517.0	

a- This licence authorizes the export of natural gas which the licensee has imported near Willow Creek, Sask. pursuant to Licence GLI-5.
b- This licence authorizes an export near Sprague, Manitoba for import near Rainy River, Ont.
c- This licence is to commence on the date of initial delivery and expire 20 1/2 years after, or a total term not exceeding 25 years. The liquefied natural gas exported will have been previously imported by the licensee near Saint John, New Brunswick pursuant to Licence GLI-7.
d- This licence authorizes an export near Emerson, Manitoba for import near Sault Ste-Marie and Sarnia, Ontario, to serve the eastern Canadian market.
e- This licence authorizes the export of natural gas previously imported and stored in Canada.
N/S Not Specified.

Gas

5. Licences and Long-Term Orders to Import Natural Gas as at 31 December 1987

Importer	Licence or Order Number	Point of Import	Term of Licence or Order From	To	Maximum Volumes Daily ($10^3 m^3$)	Annual ($10^6 m^3$)	Term ($10^6 m^3$)
Border Utilities Ltd.	GO-8-86	Coutts, Alta.	86-01-28	2005-12-31	30.0	N/S	N/S
Consolidated Natural Gas Limited	GLI-5[a]	Willow Creek, Sask.	72-03-15	92-10-31	4 249.2	1 274.8	18 951.3
ICG Transmission Holdings Ltd.	GL-30[b]	Rainy River, Ont.	70-11-01	95-10-31	1 321.8	344.0	8 498.1
Tenneco LNG Inc.	GLI-7[c]	Saint John, N.B.	c	c	N/S	418.7PJ	8 373.6PJ
TransCanada PipeLines Limited	GL-21[b]	Sault Ste-Marie and Sarnia, Ont.	68-11-05	91-10-31	N/S	7 019.1	169 967.0
	GL-42[d]	Sault Ste-Marie and Sarnia, Ont.	71-04-15 71-11-01	71-10-31 94-10-31	N/S N/S	232.8 2 612.3	60 316.5
Transcontinental Gas Pipe Line Corporation	GL-91[e]	Sarnia, Ont.	84-11-01 93-11-01 94-11-01 95-11-01	93-10-31 94-10-31 95-10-31 96-10-31	4 249.2 3 186.9 2 124.6 1 062.3	1 555.2 1 166.4 777.6 388.8	16 329.6

a- This licence authorizes an import of natural gas which the licensee will subsequently export near Emerson, Manitoba, pursuant to Licence GL-44.
b- This licence authorizes an import of natural gas which the licensee has exported near Sprague, Man.
c- This licence is to commence on the date of initial delivery and expire 20 1/2 years after, or a total term not exceeding 25 years. This liquefied natural gas hereby imported is to be subsequently exported near St. Stephen, New Brunswick, pursuant to Licence GL-49.
d- This licence authorizes an import of natural gas which the licensee has previously exported near Emerson, Manitoba. This natural gas serves Canadian markets.
e- This licence authorizes an import of natural gas for storage in Canada and subsequently exported to the United States.
N/S Not Specified.

Gas

6. Licences and Long-Term Orders to Export and/or Import Propane, Butanes, Ethane and Ethylene as at 31 December 1987

Exporter	Licence or Order Number	Points of Export	Points of Import	Term of Licence or Order From	Term of Licence or Order To	Maximum Volumes Annual (m^3)	Maximum Volumes Term (m^3)
PROPANE							
Amoco Canada Petroleum Company Ltd. (Export)	GL-32 (AO-5)	Can/US Border[a]	–	71-01-01	95-12-31	–	4 281 799
				71-01-01	72-12-31	92 698	
				73-01-01	73-12-31	569 761	
				74-01-01	74-12-31	519 682	
				75-01-01	75-12-31	506 190	
				76-01-01	76-12-31	483 571	
				77-01-01	77-12-31	456 825	
				78-01-01	93-12-31	92 698	
				94-01-01	94-12-31	77 206	
				95-01-01	95-12-31		
Dome Petroleum Limited (Export)	GL-31 (AO-7)	Can/US Border[a]	–	71-01-01	95-12-31	–	9 757 486
				71-01-01	72-12-31	133 254	
				73-01-01	73-12-31	924 999	
				74-01-01	74-12-31	870 078	
				75-01-01	75-12-31	847 301	
				76-01-01	76-12-31	812 936	
				77-01-01	77-12-31	775 793	
				78-01-01	78-12-31	744 761	
				79-01-01	79-12-31	716 983	
				80-01-01	80-12-31	688 571	
				81-01-01	81-12-31	656 190	
				82-01-01	82-12-31	620 476	
				83-01-01	86-12-31	133 254	
				87-01-01	87-12-31	143 809	
				88-01-01	88-12-31	193 016	
				89-01-01	89-12-31	196 984	
				90-01-01	90-12-31	169 047	
				91-01-01	91-12-31	165 873	
				92-01-01	92-12-31	165 079	
				93-01-01	93-12-31	162 098	
				94-01-01	94-12-31	103 968	
PanCanadian Gas Products Limited (Export)	GL-34 (AO-6)	Can/US Border[a]	–	71-01-01	87-12-31	–	2 389 521
				71-01-01	72-12-31	63 730	
				73-01-01	73-12-31	355 238	
				74-01-01	74-12-31	350 396	
				75-01-01	75-12-31	341 111	
				76-01-01	76-12-31	329 365	
				77-01-01	77-12-31	318 968	
				78-01-01	85-12-31	63 730	
				86-01-01	86-12-31	53 175	
				87-01-01	87-12-31	3 968	
Amoco Canada Petroleum Company Ltd. (Export/Import)	EPR-918-79[c]	Can/US Border[a]	Can/US Border[d]	79-09-06	96-01-31	N/S	N/S
Dome Petroleum Limited (Export/ Import)	EPR-917-79[c]	Can/US Border[a]	Can/US Border[d]	79-09-06	96-01-31	N/S	N/S

Gas

6. (Cont'd) Licences and Long-Term Orders to Export and/or Import Propane, Butanes, Ethane and Ethylene as at 31 December 1987

Exporter	Licence or Order Number	Points of Export	Import	Term of Licence or Order From	To	Maximum Volumes Annual (m^3)	Term (m^3)
Dome Petroleum Limited (Import/ Export)	EPR-930-84 (AO-2)	Sarnia, Ont.	Can/US Border[d]	84-04-01	92-04-15	-	
				84-04-01	84-12-31	458 335	
				85-01-01	85-12-31	608 335	
				86-01-01	86-12-31	608 335	
				87-01-01	87-12-31	608 335	
				88-01-01	88-12-31	608 335	
				89-01-01	89-12-31	608 335	
				90-01-01	90-12-31	608 335	
				91-01-01	91-12-31	608 335	
				92-01-01	92-04-15	153 100	
Imperial Oil Limited (Export/Import)	EPR-922-80[b]	Gretna, Man.	Sarnia, Ont.	80-09-01	90-08-31	N/S	N/S
PanCanadian Gas Products Limited (Export/Import)	EPR-919-79[f]	Can/US Border[a]	Can/US Border[d]	79-09-06	91-01-31	N/S	N/S
BUTANES							
Amoco Canada Petroleum Company Ltd. (Export/Import)	EBU-133-74[e] (AO-2)	Gretna, Man.	Sarnia, Ont.	74-07-01	95-12-31	-	7 914 026
				74-07-01	74-12-31	236 214	
				75-01-01	75-12-31	521 326	
				76-01-01	76-12-31	661 936	
				77-01-01	77-12-31	653 789	
				78-01-01	78-12-31	659 681	
				79-01-01	79-12-31	618 088	
				80-01-01	80-12-31	575 893	
				81-01-01	81-12-31	540 176	
				82-01-01	82-12-31	488 674	
				83-01-01	83-12-31	423 848	
				84-01-01	84-12-31	374 315	
				85-01-01	85-12-31	- c	
				86-01-01	86-12-31	-	
				87-01-01	87-12-31	-	
				88-01-01	88-12-31	-	
				89-01-01	89-12-31	-	
				90-01-01	90-12-31	-	
				91-01-01	91-12-31	-	
				92-01-01	92-12-31	-	
				93-01-01	93-12-31	-	
				94-01-01	94-12-31	-	
				95-01-01	95-12-31	-	
Dome Petroleum Limited (Export/ Import)	EBU-132-74[e] (AO-3)	Gretna, Man.	Sarnia, Ont.	74-07-01	95-12-31	-	9 357 529
				74-07-01	74-12-31	309 537	
				75-01-01	75-12-31	513 353	
				76-01-01	76-12-31	611 593	
				77-01-01	77-12-31	599 762	
				78-01-01	78-12-31	635 462	
				79-01-01	79-12-31	603 129	
				80-01-01	80-12-31	580 324	
				81-01-01	81-12-31	556 375	
				82-01-01	82-12-31	532 601	
				83-01-01	83-12-31	502 284	

Gas

6. (Cont'd) Licences and Long-Term Orders to Export and/or Import Propane, Butanes, Ethane and Ethylene as at 31 December 1987

Exporter	Licence or Order Number	Points of Export	Points of Import	Term of Licence or Order From	Term of Licence or Order To	Maximum Volumes Annual (m^3)	Maximum Volumes Term (m^3)
Dome Petroleum Limited (Export/Import) (Cont'd)				84-01-01	84-12-31	452 809	
				85-01-01	85-12-31	- [b]	
				86-01-01	86-12-31		
				87-01-01	87-12-31		
				88-01-01	88-12-31		
				89-01-01	89-12-31		
				90-01-01	90-12-31		
				91-01-01	91-12-31		
				92-01-01	92-12-31		
				93-01-01	93-12-31		
				94-01-01	94-12-31		
				95-01-01	95-12-31		
Imperial Oil Limited (Export/Import)	EBU-911-80[c]	Gretna, Man.	Sarnia, Ont.	80-09-01	90-08-31	N/S	N/S
PanCanadian Gas Products Limited (Export/Import)	EBU-134-74[c] (AO-1)	Gretna, Man.	Sarnia, Ont.	74-07-01	90-12-31	-	3 774 595
				74-07-01	74-12-31	167 570	
				75-01-01	75-12-31	212 599	
				76-01-01	83-12-31	213 822	
				84-01-01	90-12-31	240 550	
Texaco Canada Inc. (Export/Import)	EBU-916-82	Gretna, Man.	Sarnia, Ont.	82-07-01	92-06-30	N/S	N/S
Dome Petroleum Limited (Import/Export)	EBU-929-84 (AO-2)	Sarnia, Ont.	Can/US Border[f]	84-04-01	92-04-15		
				84-04-01	84-12-31	340 650	
				85-01-01	91-12-31	452 135	
				92-01-01	92-04-15	128 825	
ETHANE							
Dome Petroleum Limited (Export)	GL-51[g,h] (AO-8)	Export-Elmore, Sask. Re-Export - Windsor, Ont.	Windsor, Ont.	79-06-21	93-12-31	-	19 069 000
				79-06-21	79-12-31	1 287 000	
				80-01-01	80-12-31	1 090 000	
				81-01-01	81-12-31	935 000	
				82-01-01	82-12-31	1 114 000	
				83-01-01	83-12-31	1 241 000	
				84-01-01	84-12-31	1 424 000	
				85-01-01	85-12-31	2 000 000	
				86-01-01	86-12-31	2 731 000	
				87-01-01	87-12-31	2 304 000	
				88-01-01	88-12-31	1 891 000	
				89-01-01	89-12-31	1 301 000	
				90-01-01	90-12-31	765 000	
				91-01-01	91-12-31	602 000	
				92-01-01	92-12-31	280 000	
				93-01-01	93-12-31	104 000	

Gas

6. (Cont'd) Licences and Long-Term Orders to Export and/or Import Propane, Butanes, Ethane and Ethylene as at 31 December 1987

Exporter	Licence or Order Number	Points of Export	Points of Import	Term of Licence or Order From	Term of Licence or Order To	Maximum Volumes Annual (Kilograms)	Maximum Volumes Term (Kilograms)
ETHYLENE							
Dow Chemical of Canada Limited (Export)	EYL-1-76 (AO-2)[i]	Elmore, Sask. Sarnia, Ont. Windsor, Ont.	Sarnia, Ont. Windsor, Ont.	80-01-01	89-12-31	158 757 340	1 587 573 400
Dow Chemical of Canada Limited (Export/Import)	EYL-2-76 (AO-2)[j]	Elmore, Sask.	Windsor, Ont.	78-01-01	97-12-31	181 438 810	

a - For each licence or order the Canada/US Border export points include one or more of the following ports: Elmore, Sask., Gretna, Man., Sarnia and Windsor, Ont.
b - This order authorizes propane exports at Gretna, Man. for subsequent import at Sarnia, Ont.
c - This order authorizes propane exports at any point on the Canada/US Border for subsequent import of the same propane within 30 days after the day of export.
d - For each order the Canada/US Border import points include either Sarnia or Windsor, Ont. or both.
e - This order authorizes export of butanes at Gretna, Man. for subsequent import at Sarnia, Ont.
f - This order authorizes imports of butanes at Sarnia and Windsor, Ont., for subsequent export at any point along the Canada/US border (namely Sarnia and Windsor, Ont.).
g - This is an export licence which authorizes the export of ethane at Elmore, Sask., and Windsor, Ont. All or a portion of the quantity of ethane exported at Elmore, Sask., may be imported at Windsor, Ont., for subsequent re-export at Windsor, Ont.
h - Authorized exports of ethane in each year during the period 1982-01-01 to 1985-12-31 shall be reduced by the equivalent quantity of "make-up" volumes exported under Licence GL-47 which is in excess of 392 728 m^3.
i - This is an export licence which authorizes the export of ethylene at Elmore, Sask., and at Sarnia and Windsor, Ontario. All or a portion of the quantity of ethylene exported at Elmore, Sask., may be imported at Sarnia and Windsor, Ontario for subsequent re-export at Sarnia and Windsor, Ont.
j - This order authorizes an export of ethylene at Elmore, Sask., for subsequent import at Windsor, Ont.

Gas

7. Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1986 Actual	1987 Preliminary	Cumulative to 31 December 1987
Alberta and Southern Gas Co. Ltd.	GL-3	2 471.0		106 288.0
	GL-16	464.8		32 063.8
	GL-24	439.8		28 553.1
	GL-35	857.4		27 936.0
	GL-67	221.8		221.8
	GL-99	443.0	10 419.7	10 862.6
	GO-31-86	232.3		232.3
	GO-62-86	1 820.0		1 820.0
Amoco Canada Petroleum Company Ltd.	GO-10-85	51.3	7.3	75.9
	GO-104-86	.0	12.4	12.4
Bonanza Resources Ltd.	GO-58-86	.0	15.0	15.0
	GO-59-86	.0	17.0	17.0
Bonus Gas Processors Corp.	GO-78-86	.0	65.2	65.2
Brymore Gas (Canada) Inc.	GO-80-86	2.6	9.7	12.3
Canadian Hydrocarbons Limited	GO-14-87		92.7	92.7
Canadian-Montana Pipe Line Company	GL-5	.0	.0	6 386.4
	GL-17	.0	.0	3 035.3
	GL-25	.0	.0	3 516.3
	GL-36	.0	.0	1 183.2
	GL-52	211.7	187.8	1 155.8
	GO-3-79	4.3	4.1	23.1
Canterra Energy Ltd.	GO-10-87		8.9	8.9
Consolidated Natural Gas Limited	GL-44[a]	265.0	306.0	6 144.9
	GL-61	365.3	429.6	5 205.0
	GL-75		186.1	186.1
	GO-3-86	214.3		214.3
	GO-4-86	68.2		68.2
	GO-89-86	68.3	142.2	210.4
	GO-92-86	72.7	137.9	210.6
Czar Resources Ltd.	GO-9-85	7.0		13.3
	GO-30-86	29.5	46.6	76.0
Dome Petroleum Limited	GO-11-85	101.0		156.8
	GO-18-85	15.7		17.9
	GO-22-85	2.5	.0	2.5
	GO-14-86	.5	.0	.5
	GO-101-86	9.6	104.4	114.1
	GO-15-87		16.1	16.1
	GO-16-87		39.1	39.1
ICG Transmission Holdings Ltd.	GL-28	4.8	.1	129.7
	GL-29	43.4	.7	2 690.3
	GL-30[b]	175.8	171.5	4 414.0
	GO-53-86	1.7		1.7
	GO-54-86	30.5		30.5
	GO-98-86	2.5	6.1	8.6
	GO-99-86	16.4	57.5	74.0
	GO-100-86	3.8	14.8	18.7
	GO-82-87		2.1	2.1
	GO-83-87		17.4	17.4

Gas

7. (Cont'd) Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1986 Actual	1987 Preliminary	Cumulative to 31 December 1987
Imperial Oil Limited	GO-6-85[c]	87.6	-	87.6
	GO-84-86[c]	22.4	102.5	124.9
KannGaz Producers Ltd.	GL-77	-	8.6	8.6
KM Gas Company	GO-81-86	.0	33.8	33.8
Maxus Energy Canada Ltd.	GO-23-85	1.7	4.2	5.9
Natgas Canada Inc.	GO-19-86	2.0	.0	2.0
Niagara Gas Transmission Limited	GL-55	110.1	141.5	1 052.3
	GL-78	-	46.2	46.2
	GO-32-86	53.7	-	53.7
	GO-90-86	46.6	28.7	75.3
Northridge Petroleum Marketing Inc.	GO-2-85	.0	-	66.2
	GO-4-85	.0	.0	.0
	GO-13-85	55.2	27.3	96.2
	GO-25-85	.0	14.2	14.2
	GO-6-86	.0	18.7	18.7
Pan-Alberta Gas Ltd.	GL-96	2 484.8	2 625.6	7 671.9
	GL-97	1 971.4	2 201.8	7 780.5
	GO-96-86	180.0	.0	180.0
	GO-48-87	-	2 053.5	2 053.5
Petro-Canada Inc.	GO-22-87	-	4.7	4.7
Placer CEGO Petroleum	GO-19-87	-	26.8	26.8
Poco Petroleums Ltd.	GO-19-85	142.8	-	190.5
	GO-34-86	.0	54.1	54.1
	GO-39-86	.0	74.9	74.9
	GO-87-86	2.2	337.0	339.2
	GO-88-86	.0	10.0	10.0
	GO-72-87	-	1.6	1.6
	GO-74-87	-	11.9	11.9
ProGas Limited	GL-56	427.3	-	6 732.2
	GL-98	219.5	532.6	752.1
	GO-14-85	32.9	-	46.7
	GO-15-85	59.0	-	147.3
	GO-16-85	53.2	-	112.8
	GO-9-86	44.6	-	44.6
	GO-10-86	38.9	-	38.9
	GO-11-86	25.5	-	25.5
	GO-12-86	79.3	-	79.3
	GO-26-86	.0	155.1	155.1
	GO-27-86	.0	40.9	40.9
	GO-28-86	.0	17.6	17.6
	GO-29-86	.0	155.1	155.1
	GO-97-86	77.4	62.5	139.8
	GO-85-87	-	129.7	129.7
Shell Canada Limited	GL-100	-	6.4	6.4
	GO-28-85	17.1	-	17.1
	GO-21-86	.3	-	.3
	GO-105-86	-	224.7	224.7

Gas

7. (Cont'd) Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1986 Actual	1987 Preliminary	Cumulative to 31 December 1987
Sulpetro Limited	GL-82	431.9	279.4	1 810.5
	GO-8-85	.0	-	.9
TransCanada PipeLines Limited	GL-18	205.1	.0	20 552.8
	GL-19	111.3	92.9	2 234.5
	GL-20	52.3	276.5	13 796.3
	GL-21[d]	6 493.5	6 262.1	110 725.3
	GL-37	704.4	513.3	27 770.7
	GL-38	59.8	.0	6 770.7
	GL-39	21.7	.0	915.0
	GL-42[d]	2 416.7	2 330.6	35 045.1
	GL-43	.0	.0	1 335.8
	GL-83	378.0	412.4	1 241.8
	GL-89	374.8	.0	604.0
	GO-7-86	619.4	-	619.4
	GO-13-86	104.9	-	104.9
	GO-24-86	16.7	-	16.7
	GO-25-86	1.7	-	1.7
	GO-40-86	.0	184.5	184.5
	GO-51-86	25.4	-	25.4
	GO-52-86	176.1	-	176.1
	GO-56-86	36.9	.0	36.9
	GO-83-86[f]	3.8	.0	3.8
	GO-86-86	34.3	21.7	56.0
	GO-91-86	15.8	32.3	48.1
	GO-93-86	230.5	384.1	614.6
	GO-103-86	-	481.3	481.3
	GO-27-87	-	33.3	33.3
	GO-33-87[f]	-	55.6	55.6
	GO-37-87	-	651.6	651.6
Union Enterprises Ltd.	GO-4-87[g]	-	3.9	3.9
Wainoco Oil Corporation	GO-55-87	-	3.3	3.3
Westcoast Transmission Company Limited	GL-4	254.4	148.9	29 195.3
	GL-41	1 430.5	3 403.5	76 617.7
	GO-15-86	348.3	-	348.3
	GO-16-86	81.9	-	81.9
	GO-17-86	1.6	.0	1.6
	GO-23-86	1.0	-	1.0
	GO-94-86	77.6	.0	77.6
	GO-95-86	771.2	.0	771.2
GROSS EXPORTS		**30 435.6**	**37 240.8**	**605 608.2**
NET EXPORTS[h]		**20 970.7**	**28 008.7**	**449 001.2**

a – This licence authorizes an export of gas which the licensee has imported near Willow Creek, Sask. pursuant to Licence GLI-5.
b – This licence authorizes an export of gas near Sprague, Man. for import near Rainy River, Ont.
c – This order authorizes an export of gas near Emerson, Man. in exchange for an import of ethane by Dome Petroleum Limited near Sarnia, Ont.
d – This licence authorizes an export of gas near Emerson, Man. for import near Sault Ste. Marie and Sarnia, Ont. to serve the eastern Canadian markets.
e – This order authorizes an export of gas which the order holder has imported near Niagara Falls, Ont.
f – This order authorizes an export of gas as a pre-delivery of gas to Tennessee Gas Pipeline Company and for subsequent import near Niagara Falls, Ont.
g – This order authorizes an export of gas which the order holder has imported near Windsor, Ont.
h – Excludes volumes of licences/orders under footnotes.
– No data available.

Gas

8. Imports of Natural Gas (Millions of Cubic Metres)

Importer	Licence or Order Number	1986 Actual	1987 Preliminary	Cumulative to 31 December 1987
Border Utilities Ltd.	GO-8-86	.7	.7	1.4
Canadian Western Natural Gas Company Limited	GO-5-85	1.5	–	3.1
	GO-69-86	.3	.4	.7
	GO-56-87	–	– –	.0
Consolidated Natural Gas Limited	GL-5[a]	267.8	309.7	6 238.4
ICG Transmission Holdings Ltd.	GL-30[b]	175.8	171.5	4 414.0
TransCanada PipeLines Limited	GL-21[c]	6 404.1	6 445.2	110 666.4
	GL-42[c]	2 383.4	2 320.5	35 117.5
	GO-83-86[d]	3.7	.0	3.7
	GO-33-87[e]	.0	32.9	32.9
Union Enterprises Ltd.	GO-3-87[f]	–	3.9	3.9
Union Gas Limited	GO-5-86	55.8	–	55.8
	GO-41-86	56.7	–	56.7
	GO-55-86	56.7	–	56.7
	GO-68-86	48.4	–	48.4
	GO-82-86	41.1	21.8	63.0
	GO-65-87	–	56.7	56.7
	GO-84-87	–	13.6	13.6
GROSS IMPORTS		9 496.1	9 377.0	156 832.8
NET IMPORTS[g]		261.2	93.3	356.1

a – This licence authorizes an import of gas which permits the licensee to subsequently export near Emerson, Man. pursuant to Licence GL-44.
b – This licence authorizes an import of gas which the licensee has previously exported near Sprague, Man.
c – This licence authorizes an import of gas which the licensee has previously exported near Emerson, Man. This natural gas serves Canadian markets.
d – This order authorizes an import of gas which permits the order holder to subsequently export near Niagara Falls, Ont.
e – This order authorizes an import of gas which the order holder has previously exported near Niagara Falls, Ont., as a pre-delivery of gas to Tennessee Gas Pipeline Company.
f – This order authorizes an import of gas which permits the order holder to subsequently export near Windsor, Ont.
g – Excludes volumes of licences/orders under footnotes.
– – Too small to be expressed.
– No data available.

Gas

9. Exports of Propane, Butanes, Ethane and Ethylene Under Licences and Orders (Cubic Metres)

Exporter	Licence or Order Number	1986 Actual	1987 Preliminary
PROPANE			
Amoco Canada Petroleum Company Ltd.	GL-32	92 696	92 698
	EPR-918-79[a]	811 117	905 445
	EPR-934-86[b]	2 239	2 286
Canstates Energy	EPR-939-87	N/A	5 862
Dome Petroleum Limited	GL-31	133 254	143 809
	GL-917-79[a]	708 400	700 914
	GL-930-84[b]	384 040	447 713
Imperial Oil Limited	EPR-922-80[a]	0	0
PanCanadian Gas Products Limited	GL-34	0	0
	EPR-919-79[a]	240 782	239 658
Petro-Canada Inc.	EPR-931-85[b]	299	0
	EPR-934-86[b]	0	0
Procor Limited	EPR-935-86[b]	0	0
Superior Propane	EPR-942-87	N/A	38 126
GROSS EXPORTS		**2 372 528**	**2 919 511**
NET EXPORTS[c]		**225 950**	**238 507**
BUTANES			
Amoco Canada Petroleum Company Ltd.	EBU-133-74[a]	517 216	751 961
	EBU-933-86[b]	7 958	7 988
Dome Petroleum Limited	EBU-132-74[a]	634 089	712 589
	EBU-929-84[b]	274 498	254 937
Imperial Oil Limited	EBU-911-80[a]	0	0
PanCanadian Gas Products Limited	EBU-134-74[a]	102 016	128 202
Petro-Canada Inc.	EBU-930-85[b]	0	0
	EBU-934-86[b]	0	0
Procor Limited	EBU-935-86[b]	0	0
Texaco Canada Incorporated	EBU-916-82[a]	1 201	0
GROSS EXPORTS		**1 536 978**	**1 855 677**
NET EXPORTS[c]		**0**	**0**

Gas

9. (Cont'd) Exports of Propane, Butanes, Ethane and Ethylene Under Licences and Orders (Cubic Metres)

Exporter	Licence or Order Number	1966 Actual	1967 Preliminary
ETHANE			
Dome Petroleum Limited	GL-51	814 816	839 879
GROSS EXPORTS		**814 816**	**839 879**
NET EXPORTS[c]		**317 672**	**0**
ETHYLENE		**Kilograms**	
Dow Chemical of Canada Limited	EYL-1-76	0	0
	EYL-2-76[a]	141 351 027	127 715 403
GROSS EXPORTS		**141 351 027**	**127 715 403**
NET EXPORTS[c]		**0**	**0**

a – This licence/order authorizes an export of product for subsequent import.
b – This is an import-export licence/order whereby product exported has been previously imported.
c – Excludes volumes of licences/orders under footnotes.
N/A Not Applicable

Gas

10. Imports of Propane, Butanes, Ethane and Ethylene Under Licences and Orders (Cubic Metres)

Importer	Licence or Order Number	1986 Actual	1987 Preliminary
PROPANE			
Amoco Canada Petroleum Company Ltd.	EPR-918-79[a]	821 022	928 374
	EPR-934-86[b]	2 239	2 286
Canstates Energy	EPR-939-87	N/A	5 862
Dome Petroleum Limited	EPR-917-79[a]	720 778	686 023
	EPR-930-84[b]	403 922	347 258
Imperial Oil Limited	EPR-922-80[a]	0	0
PanCanadian Gas Products Limited	EPR-919-79[a]	240 782	239 658
Petro-Canada Inc.	EPR-931-85[a]	285	0
	EPR-934-86[b]	3 065	3 065
Procor Limited	EPR-935-86[b]	0	0
Superior Propane	EPR-942-87	N/A	38 141
GROSS IMPORTS		**2 192 093**	**2 250 667**
NET IMPORTS[c]		**0**	**0**
BUTANES			
Amoco Canada Petroleum Company Ltd.	EBU-133-74[a]	520 204	761 297
	EBU-933-86[b]	7 958	7 988
	EBU-941-87	N/A	3 650
Canstates Energy	EBU-939-87	N/A	0
Dome Petroleum Limited	EBU-132-74[a]	653 951	683 764
	EBU-929-84[b]	270 746	253 958
Imperial Oil Limited	EBU-911-80[a]	0	0
PanCanadian Gas Products Limited	EBU-134-74[a]	102 016	128 202
Petro-Canada Inc.	EBU-930-85[a]	0	0
	EBU-934-86[b]	0	0
Procor Limited	EBU-935-86[b]	0	0
Texaco Canada Incorporated	EBU-916-82[a]	1 201	0
GROSS IMPORTS		**1 556 076**	**1 838 859**
NET IMPORTS[c]		**0**	**0**

10. (Cont'd) Imports of Propane, Butanes, Ethane and Ethylene Under Licences and Orders (Cubic Metres)

Importer	Licence or Order Number	1986 Actual	1987 Preliminary
ETHANE			
Dome Petroleum Limited	GL-51	499 883	782 805
	GO-7-85[d]	77 886	N/A
	GO-33-86[d]	79 981	N/A
	GO-85-86[d]	32 980	119 993
	GO-44-87[d]	N/A	119 980
GROSS IMPORTS		**690 730**	**1 022 778**
			Kilograms
ETHYLENE			
Dow Chemical of Canada Limited	EYL-1-76	0	0
	EYL-2-76[a]	138 633 421	115 751 879
GROSS IMPORTS		**138 633 421**	**115 751 879**
NET IMPORTS[c]		**0**	**0**

a – This licence/order authorizes an import of product which has been previously exported.
b – This is an import-export licence/order whereby product imported is subsequently exported.
c – Excludes volumes of licences/orders under footnotes.
d – This order authorizes an import of ethane at Sarnia, Ont. in exchange for natural gas exported at Emerson, Man. by Imperial Oil Limited.
N/A Not Applicable

Gas

11. Total Net Exports of Propane and Butanes (Cubic Metres)

Exporter	Propane		Butane	
	1986 Actual	1987 Preliminary	1986 Actual	1987 Preliminary
Amoco Canada Petroleum Company Ltd.[a]	290 428	280 813	390 809	466 242
Atlantic Speedy Propane Limited	1 634	2 500	N/A	N/A
Burnell Gas of Canada Ltd.	27 353	34 256	N/A	N/A
Can-Am Liquids Corp. Ltd.	11 414	7 054	1 294	1 178
Canadian Enterprise Gas Products Ltd.	12 063	9 423	24 802	27 938
Canadian Superior Oil Ltd.	32 577	6 316	48 331	18 113
CanPet Marketing Ltd.	2 367	7 077	706	11 029
Canstates Energy	57 196	19 297	83 173	93 153
Chevron Canada Resources Ltd.	20 599	19 005	0	0
Consumers' Co-Operative Refineries Limited	1 956	4 917	0	989
Dome Petroleum Limited[a]	684 439	887 901	546 385	615 007
Dominion Propane Corp.	0	179	N/A	0
Elbow River Resources	0	0	0	8 778
Elgin Resources Limited	6 838	8 643	2 161	17 792
Enron Canada Ltd.[b]	8 301	26 250	1 958	21 137
Gas Supply (Minn.) Ltd.	N/A	7 938	N/A	N/A
Gibson Gas Liquids Ltd.	0	6 023	N/A	21 506
Gulf Canada Resources Inc.	6 445	3 168	2 009	28 734
Gulliver Energy Ltd.	122	0	495	0
Home Oil Company Limited	11 212	21 676	28 209	31 779
Husky Oil Operations Ltd.	654	0	817	0
ICG Liquid Gas Ltd.	41 924	58 860	N/A	0
Imperial Oil Limited	242 346	242 303	325 004	402 753
Irving Oil Ltd.	N/A	437	0	0
Kildair Service Ltee	0	0	0	0
Koch Hydrocarbons Canada	0	0	21 011	40 850
L.H.H. Enterprises Ltd.	N/A	0	N/A	0
L.P.G. Resources Canada Inc.	N/A	0	N/A	0
M-P Oils Limited	3 337	2 758	6 087	1 955
Mobil Oil Canada Ltd.	50 023	94 961	53 920	115 867
Newfoundland Processing Ltd.	N/A	0	N/A	0
NGL Supply (1985) Ltd.	1 086	21 838	0	5 264
Olco Oil	0	0	N/A	0
PanCanadian Gas Products Limited[a]	137 779	115 564	115 471	125 701
Petro-Canada Hydrocarbon	N/A	363 569	N/A	292 510
Petro-Canada Inc.	295 262	0	284 681	0
Petrogas Marketing Ltd.	N/A	2 128	N/A	6 985
Petromont Inc.	N/A	N/A	N/A	3 803
Petrosol International Inc.	10 000	0	0	0
Petrowest Petroleum Ltd.	19 226	35 723	13 525	10 582
Raymond Gas Liquids Marketing Ltd.	14 995	3 740	29 486	6 252
Rivecal Energy Ltd.	0	0	0	0
Shell Canada Limited	163 519	163 896	243 232	214 635
Stephens Energy Limited	25 682	23 760	31 645	73 170
Stittco Energy Limited	5 077	2 857	0	421
Sunoco Inc.	12 245	4 055	16 284	54 689
Superior Propane Inc.	N/A	49	N/A	N/A
Texaco Canada Inc.	66 670	69 591	79 258	62 567
Ultramar Canada Inc.	0	N/A	0	N/A
Unocal Canada Limited	8 285	8 912	486	3 861
Westcan Energy Ltd.	9 392	20 022	4 830	12 695
TOTAL	**2 282 446**	**2 587 459**	**2 356 547**	**2 797 935**

a – Includes net export volumes under licences.
b – Enron Canada name changed from Consolidated Gathering System Ltd.
N/A Not Applicable

Electricity

1. Certificates Issued During 1987 Approving International Power Lines

No Certificates were issued in 1987

Electricity

2. Orders Issued During 1987 Relating to International Power Lines

Applicant	Order No.	Issued	Facilities
Hydro-Québec	XE-1-87	24 Jun. 1987	One international power line extending from the distribution transformer designated as M2KIC, to a point on the international boundary line located 15 metres north-east of marker no. 353A in the municipality of Saint-Théophile. This single circuit single phase line operates at a nominal voltage of 120/240 volts.
Hydro-Québec	XE-2-87	4 Nov. 1987	One international power line extending from the distribution transformer designated as M0R7C, to a point on the international boundary line located 104 metres south-east of the distribution post M0R7G row 2 in the municipality of St-Cyprien. This single circuit single phase line operates at a nominal voltage of 120/240 volts.

Electricity

3. Licences Issued During 1987 Relating to the Export of Electric Power and Energy

Applicant	Class	Megawatts	Annual Gigawatt Hours	Term		Hearing Commenced	Issued	Licence No.
				From	To			
The Manitoba Hydro-Electric Board	Firm	200	883	93-05-01	96-10-31	9 Jun. 1987	26 Aug. 1987	EL-174

Electricity

4. Orders Issued During 1987 Relating to the Export of Electric Power and Energy

4(a) Orders issued pursuant to Section 7 of the Part VI Regulations.

Applicant	Order No.	Issued	Class	Kilowatts	Annual Megawatt Hours	Term	
						From	To
British Columbia Hydro and Power Authority	ELO-225	24 Sep. 1987	Firm	5 700	15 000	87-10-01	90-09-30
Cominco Ltd.	ELO-216	5 Aug. 1987	Carrier Transfer	-	50 000	88-01-01	90-12-31
Cominco Ltd.	ELO-217	5 Aug. 1987	Equichange	-	250 000	88-01-01	90-12-31
Cominco Ltd.	ELO-218	31 Aug. 1987	Interruptible	-	1 000 000	88-01-01	90-12-31
Cominco Ltd.	ELO-219	31 Aug. 1987	Carrier Transfer	-	1 000 000	88-01-01	90-12-31
Fraser Inc.	ELO-214	31 Aug. 1987	Firm	60 000	400 000	88-01-01	90-12-31
Hydro-Québec	ELO-213	27 Feb. 1987	Firm	50 000	250 000	87-03-01	88-02-29
Hydro-Québec	ELO-220	24 Jun. 1987	Firm	240	480	87-08-01	90-07-31
Hydro-Québec	ELO-221	24 Jun. 1987	Firm	240	480	87-08-01	90-07-31
Hydro-Québec	ELO-222	24 Jun. 1987	Firm	40	80	87-08-01	90-07-31
The Manitoba Hydro-Electric Board	ELO-215	23 Apr. 1987	Firm	50 000	110 400	87-05-01	87-10-31
New Brunswick Power	ELO-226	29 Oct. 1987	Firm	60 000	400 000	87-11-01	88-10-31
West Kootenay Power and Light Company Limited	ELO-227	16 Dec. 1987	Firm	20	50	88-01-01	90-12-31

Electricity

4. (Cont'd) Orders Issued During 1987 Relating to the Export of Electric Power and Energy

4(b) Amending orders issued relating to power and energy

Applicant	Order No.	Issued	Comments
Hydro-Québec	AO-2-EL-169	11 Jun. 1987	Amendment reflecting the Board's approval of an interconnection agreement with Vermont Joint Owners.
Hydro-Québec	AO-3-ELO-196	24 Jun. 1987	Amendment authorizing export over the international power line authorized by Order XE-1-87.
Hydro-Québec	AO-1-ELO-213	23 Oct. 1987	Amendment increasing the quantity of energy authorized by Order ELO-213.
Hydro-Québec	AO-1-ELO-195	4 Nov. 1987	Amendment authorizing export over the international power line authorized by Order XE-2-87.
New Brunswick Power	AO-2-ELO-212	22 Oct. 1987	Amendment reflecing the Board's approval of an agreement with Central Maine Power Company.

Electricity
5. Exports of Electric Energy (Megawatt Hours)

Exporter	Licence Number	Licence Authorization		Gross Energy Exported			Net Reported Dollar Value of Export	
		Firm	Interruptible	Firm	Interruptible	Exchange[a]	Firm	Interruptible
NEW BRUNSWICK								
Fraser Inc.	EL-122*	400 000	-	378 091	-	-	16 483 905	-
	EL-123*	-	50 000	-	-	-	-	-
Maine and New Brunswick Electrical Power Company, Limited	EL-22	250 000	-	71 782	-	-	1 353 686	-
	EL-23	-	25 000	-	-	-	-	-
New Brunswick Power	EL-137	876 000	-	805 972	-	-7 070	50 706 717	-
	EL-138	876 000	-	805 972	-	-7 070	55 777 905	-
	EL-139	92 000	-	45 818	-	-2 828	3 212 138	-
	EL-140	-	6 482 400[b]	-	3 377 665	- 933	-	124 985 832
	EL-141	1 226 400	-	-	-	252 565	-	-
	EL-142	140 000	-	-	-	-	-	-
	EL-143	-	300 000	-	200 832	- 2 376	-	9 239 270
	EL-144	250 000	-	-	-	-	-	-
	EL-145	-	179 000	-	12 096	490	-	505 137
	EL-150	1 138 000	-	201 492	-	-1 767	13 946 772	-
	ELO-197	250 000	-	-	-	-	-	-
from	ELO-201		-		-	-		-
to	ELO-203	445	-	265	-	-	26 685	-
	ELO-212	250 000	-	5 759	-	-	1 321 855	-
	ELO-226	400 000	-	3 840	-	-	473 395	-
TOTAL				**2 318 991**	**3 590 593**	**231 011**	**143 303 058**	**134 730 239**
QUEBEC								
Cedars Rapids Transmission Company, Limited	ELO-207	20 000	-	-	-	-	-	-
Hydro-Québec	EL-96	3 000 000	-	3 000 000	-	-	93 819 031	-
	EL-151	-	7 000 000	-	1 844 836	-	-	36 074 081
	EL-152	-	23 564 000[c]	-	623 815	-	-	15 207 650
	EL-153	-	23 564 000[c]	-	3 497 601	-132	-	75 249 157
	EL-154	11 220 000[d]	-	749 440	-	-	18 245 485	-
	EL-155	13 140 000[d]	-	62 897	-	-	1 752 673	-
	EL-156	25 000	-	-	-	-	-	-
	EL-165	-	3 000 000	-	-	-	-	-
	EL-166	-	4 000 000	-	3 081 841	-	-	79 414 941
	EL-167	-	6 920 000[e]	-	1 691 158	1 259	-	56 825 654
	EL-168	1 314 000	-	1 063 697	-	-	47 522 007	-
	EL-169	-	1 752 000[f]	-	397 497	-462	-	8 281 202
	EL-171	205 000	-	103 382	-	-	4 622 688	-
	EL-172	657 000[g]	-	13 218	-	-	586 302	-
from	ELO-189							
to	ELO-196							
and from	ELO-220							
to	ELO-222	1 822	-	965	-	-	48 686	-
	ELO-213	400 000	-	269 894	-	-	7 697 798	-
TOTAL				**5 383 493**	**11 136 748**	**665**	**174 294 453**	**271 062 684**

Electricity

5. (Cont'd) Exports of Electric Energy (Megawatt Hours)

Exporter	Licence Number	Licence Authorization		Gross Energy Exported			Net Reported Dollar Value of Export	
		Firm	Interruptible	Firm	Interruptible	Exchange[a]	Firm	Interruptible
ONTARIO								
Boise Cascade Canada Ltd.	EL0-211	–	70 000	–	129	–	–	4 592
Canadian Niagara Power Company Limited	EL-161	–	500 000	–	417 613	8 331	–	14 773 526
The Canadian Transit Company	ELO-199	25	–	24	–	–	–	–
The Detroit and Windsor Subway Company	ELO-204	2 000	–	1 179	–	–	–	–
Ontario Hydro	EL-32	15 000	–	650	–		1 300	–
	EL-134	–	10 000 000	–	–	1 130 018	–	–
	EL-135	10 500 000	–	263 524	–	–	10 400 547	–
	EL-136	–	25 000 000[b]	–	6 229 486	160 776	–	183 648 853
	ELO-198	200	–	14	–	–	1 011	–
St. Lawrence Power Company	EL-158	–	250 000	–	–	444	–	–
	EL-159	–	150 000	–	41 549	–	–	944 817
	EL-160	–	150 000	–	–	2 987	–	–
	ELO-188	–	250 000	–	240 079	–	–	5 797 473
TOTAL				**265 391**	**6 928 856**	**1 302 556**	**10 402 858**	**205 169 261**
MANITOBA								
The Manitoba Hydro-Electric Board	EL-97	–	1 800 000	–	339 800	–	–	4 666 656
	EL-98	876 000	–	165 320	–	–	6 564 371	–
	EL-99	262 800	–	262 800	–	–	5 396 575	–
	EL-100	800 000	–	–	–	–	–	–
	EL-101	2 500 000	–	–	–	167 798	–	–
	EL-102	923 000	–	–	–	–	–	–
	EL 103	–	12 000 000[b]	–	2 473 244	-21 293	–	47 142 772
	ELO-200							
	ELO-210	7 899	–	1 725	–	–	74 631	–
	ELO-215[c]	110 400	–	71233	–	–	1 462 208	–
TOTAL				**501 078**	**2 813 044**	**146 505**	**13 497 785**	**51 809 428**

Electricity

5. (Cont'd) Exports of Electric Energy (Megawatt Hours)

Exporter	Licence Number	Licence Authorisation		Gross Energy Exported			Net Reported Dollar Value of Export	
		Firm	Interruptible	Firm	Interruptible	Exchange[a]	Firm	Interruptible
SASKATCHEWAN								
Saskatchewan	EL-118	438 000[j]	-	44 350	-	-	-	-
Power Corporation	EL-119	-	876 000[k]	-	10 610	58 275	-	168 053
	EL-120	876 000[k]	-	-	-	-	-	-
TOTAL				**44 350**	**10 610**	**58 275**	**-**	**168 053**
BRITISH COLUMBIA								
British Columbia	EL-162	6 000 000	-	433 430	-	-	12 678 905	-
Hydro and Power	EL-163	-	15 000 000[l]	-	11 190 115	-463 625	-	178 318 954
Authority	EL-164	-	3 000 000	-	-	449 217	-	-
	ELO-205							
and	ELO-225	15 500	-	13 043	-	-	602 910	-
	[m]	-	-		-	317 760	-	-
Cominco Ltd.	EL-146*	50 000	-	-	-	-	-	-
	EL-147*	-	1 100 000	-	849 011	-	-	14 819 054
	EL-148*	250 000	-	-	-	25 654	-	-
	EL-149*	-	1 000 000	-	-	-	-	-
West Kootenay Power and Light Company, Limited	ELO-227	50	-	23	-	-	1 014	-
TOTAL				**446 496**	**12 039 126**	**329 005**	**13 282 829**	**193 138 008**
TOTAL CANADA[n]				**8 839 799**	**36 518 977**	**2 068 017**	**354 780 983**	**856 067 673**

a- Exchange is no value energy. It includes inadvertent and circulating flow, equichange, storage adjustment transfer and wheeling or carrier transfer.
b- Total exports should not exceed 6 482.4 GW.h when combined with the amounts exported under Licences EL-137, EL-138, EL-150 and Orders ELO-212 and ELO-226.
c - Total exports not to exceed 23 564 GW.h when combined with exports made pursuant to another licence under which the energy is transmitted over the lines authorized by Certificates of Public Convenience and Necessity EC-III-15 and EC-10.
d- Total exports under EL-154 and EL-155 should not exceed 13 140 GW.h when combined together.
e - Total exports should not exceed 6 920 GW.h when combined with the amount exported under Licences EL-165 and EL-166.
f - Total exports should not exceed 1752 GW.h when combined with the amounts exported under Licence EL-168
g - Total exports should not exceed 657 GW.h when combined with the amounts exported under Licence El-171.
h- Total exports should not exceed 25 000 GW.h when combined with the amount exported under Licence EL-135.
i - Total exports should not exceed 12 000 GW.h when combined with the amounts exported under Licences EL-97, EL-98, EL-99, EL-100, EL-101 and EL-102.
j - No value energy, energy to be returned.
k- Total exports under Licences EL-119 and EL-120 should not exceed 876 GW.h. when combined together.
l - Total exports should not exceed 15 000 GW.h when combined with exports under Licence EL-162.
m- Energy exported in accordance with the Skagit River Valley Treaty which is not under the Board's jurisdiction.
n- Excludes $1 833 656 revenue for wheeling, transmission, unit rental and storage transfer charges.
*- Expires during 1987.

Financial Regulatory

1. 1987 Financial Information[a] – Group 1 Pipeline Companies

Oil Pipelines[b]	Cochin ($000 000)	Cochin (%)	Interprovincial ($000 000)	Interprovincial (%)	IPL(NW) ($000 000)	IPL(NW) (%)	Trans Mountain ($000 000)	Trans Mountain (%)	Trans-Northern ($000 000)	Trans-Northern (%)	Total
Revenue Requirement											
Return	8.5	33.7	61.5	26.0	45.3	56.9	7.7	17.4	5.3	20.7	128.3
Depreciation	5.2	20.6	30.9	13.0	14.8	18.6	3.3	7.4	1.9	7.4	56.1
Operating & Mtce.	10.3	41.3	98.3	41.5	5.1	6.4	21.0	47.4	13.0	50.8	147.7
Taxes	1.1	4.4	46.2	19.5	14.4	18.1	12.3	27.8	5.4	21.1	79.4
Total	25.1	100.0	236.9	100.0	79.6	100.0	44.3	100.0	25.6	100.0	411.5
Capitalization Of Rate Base[c]											
Debt	N/A[d]	N/A	329.5	58.5	241.5	73.0	32.0	46.8	19.0	41.7	622.0
Preferred	N/A[d]	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred Taxes	N/A[d]	N/A	51.6	9.2	0.0	0.0	4.4	6.4	9.2	20.2	65.2
Common Equity	N/A[d]	N/A	182.2	32.3	89.5	27.0	32.0	46.8	17.4	38.1	321.1
Total	58.6	100.0	563.3[e]	100.0	331.0	100.0	68.4	100.0	45.6	100.0	1 008.3
Return On Common Equity											
Approved	N/A	N/A	24.7	13.25	14.3	16.0	4.3	14.0	2.6	13.91	
Actual	8.5	14.44	26.9	14.74	14.3	16.0	4.1	12.8	2.9	15.72	

Gas Pipelines[b]	Alberta Natural Gas ($000 000)	Alberta Natural Gas (%)	Foothills ($000 000)	Foothills (%)	TQM ($000 000)	TQM (%)	TransCanada ($000 000)	TransCanada (%)	Westcoast ($000 000)	Westcoast (%)	Total
Revenue Requirement											
Return	1.9	7.6	69.1	38.0	52.1	67.9	336.0	27.5	84.8	32.9	543.9
Depreciation	1.9	7.6	35.9	19.8	16.5	21.5	93.9	7.7	29.1	11.3	177.3
Operating & Mtce.	17.1	68.1	40.6	22.3	6.2	8.1	607.0	49.8	78.1	30.3	749.0
Taxes	4.2	16.7	36.2	19.9	1.9	2.5	182.6	15.0	65.9	25.5	290.8
Total	25.1	100.0	181.8	100.0	76.7	100.0	1 219.5	100.0	257.9	100.0	1 761.0
Capitalization Of Rate Base[c]											
Debt	11.1	65.0	443.4	60.4	298.0	75.0	1 393.4	54.5	429.6	54.5	2 575.5
Preferred	0.0	0.0	0.0	0.0	0.0	0.0	344.1	13.4	34.2	4.3	378.3
Deferred Taxes	0.0	0.0	119.2	16.2	0.0	0.0	75.9	3.0	75.5	9.6	270.6
Common Equity	6.0	35.0	171.9	23.4	99.3	25.0	744.6	29.1	249.7	31.6	1 271.5
Total	17.1	100.0	734.5	100.0	397.3	100.0	2 558.0[e]	100.0	789.0[e]	100.0	4 495.9
Return On Common Equity											
Approved	0.7	13.25	26.4	14.25	13.4	13.50	98.6	13.25	33.8	13.50	
Actual	0.7	13.25	26.4	14.25	14.1	14.16	100.8	13.59	33.5	13.48	

a- Based on preliminary estimates.
b- Full names of companies are listed in *Companies Under National Energy Board Jurisdiction* at the front of this report
c- Adjusted to show deferred taxes as a source of funds.
d- Not applicable as company is financed on a joint venture basis.
e- Excludes construction work in progress.

Senior Staff of the Board[1]

Office of the Executive Director
Robin D. Glass, Executive Director

Finance Branch
Wayne Ganim, Director

Personnel Branch
Jim L. Thompson, Director

Plans and Evaluations Branch
Claire M.M. Scott, Director

Energy Regulation Directorate
Peter L. Miles, Director General

Economics Branch
Mark D. Segal, Director

Energy Supply Branch
W. Alan Hiles, Director

Electric Power Branch
Alex N. Karas, Director

Gas Branch
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Pipeline Regulation Directorate
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Pipeline Engineering and Operations Branch
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Peter A. Carr, Director

Law Branch
Sandra K. Fraser, General Counsel

Office of the Secretary
John S. Klenavic, Secretary

Information Technology Branch
Don Emmens, Director

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[1] As of 31 December 1987